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The Milroy Lectures

ON

PARATYPHOID FEVER AND MEAT POISONING.

Delivered before the Royal College of Physicians of London

BY F. A. BAINBRIDGE, M.A., M.D. CANTAB., F.R.C.P. LOND., D.P.H.,

PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF DURHAM.

LECTURE I.

Delivered on Feb. 29th.

MR. PRESIDENT AND GENTLEMEN,—I wish to offer my thanks to the College for the honour conferred in appointing me to deliver these lectures.

The clinical features of meat poisoning and paratyphoid fever are very different and at the first glance the two diseases may appear to have little or nothing in common. They are, however, linked together by the fact that they are caused by closely allied organisms.

Some writers have emphasised the clinical difference between them, whereas others have called attention to the similarity (some say the identity) of the bacilli by which they are caused. At the present time the term paratyphoid fever has, therefore, a very different meaning for various writers, and as a result the literature abounds in widely divergent statements, and the whole subject has been rendered obscure to those who have not made a special study of it.

No attempt has yet been made to correlate the bacteriological and epidemiological characters of meat poisoning and paratyphoid fever with the nature and distribution of the diseases with which they are associated, and the absence of any authoritative and generally accepted definition of the two diseases has inevitably led to confused notions regarding their relation to one another. My object in these lectures is to make it clear that they are essentially different diseases, more especially as regards their bacteriology. The recognition of this fact is a necessary preliminary to any advance in their treatment by preventive measures.

I propose first to discuss the classification of the organisms, which are associated with paratyphoid fever and meat poisoning; secondly, to state the definitions of these diseases which appear to accord best with the facts at present available; and thirdly, to describe them separately in order to bring out as sharply as possible the contrast between them. Finally, other definitions of paratyphoid fever will be considered.

HISTORICAL RÉSUMÉ.

It will be convenient, before discussing the different organisms, to give a brief historical *résumé* of the circumstances under which the various bacteria associated with these diseases were isolated, and then to classify them as far as possible.

In 1888, while investigating a large outbreak of meat poisoning Gaertner isolated from the suspected meat and from the spleen of a patient who died a bacillus which he called *B. enteritidis*. Ten years later Durham in England and De Nobele in Belgium independently and almost simultaneously isolated from cases of meat poisoning and from the meat a bacillus closely allied to Gaertner's bacillus. The new organism was called *B. aertrycke*, this being the name of the village in which occurred the outbreak recorded by De Nobele.

In 1896, Acharde and Bensaude isolated from the urine of a case of apparent enteric fever and also from a purulent arthritis following a similar illness a bacillus which they called the *paratyphoid bacillus*. And in 1900–01, Schottmüller obtained from the blood of patients whose symptoms were those of enteric fever two bacilli closely resembling the paratyphoid bacillus of Achard and Bensaude. These two organisms were named by Brion and Kayser B. paratyphosus (A) and B. paratyphosus (B).

The relationship between these four organisms was not at once recognised, but it has been shown during the last few years that they are very closely allied to each other, and also to *B. suipestifer*. This latter organism was isolated by Salmon and Theobald Smith (1885) from an outbreak of swine fever (also known as hog cholera and Schweinpest). They regarded it as the cause of swine fever and for some time its relation to disease in man was entirely unsuspected. It is now well known, through the work of De Schweinitz, Dorset, and McBryde, confirmed by others, that it is not the cause of swine fever, but is merely a secondary invader in that disease.

CLASSIFICATION.

The close relationship between these organisms necessitates the employment of rather laborious methods for their identification. Cultural tests are inadequate and must invariably be supplemented by agglutination and absorption tests.

Cultural Characters.

B. paratyphosus (A) differs culturally from the other members of the group in one important respect—namely, in its action upon litmus milk and in some minor details. The other four organisms are indistinguishable from one another by their cultural characters and their action upon carbohydrates.[1]

Agglutination Tests.

A further means of differentiation is furnished by the use of sera obtained from animals immunised with killed or living cultures of these bacilli. By the aid of such sera B. paratyphosus (A) and B. enteritidis (Gaertner) can readily be distinguished both from each other and from the remaining members of the group. B. aertrycke, B. suipestifer, and B. paratyphosus (B) cannot usually be separated by agglutination tests, although with some sera B. paratyphosus (B) can be distinguished from the other two bacilli.

TABLE I.—*Agglutination Reactions with Sera obtained from Inoculated Animals.*

—	B. paratyphosus (A).	B. paratyphosus (B).	B. suipestifer.	B. aertrycke.	B. enteritidis (Gaertner).
Serum of rabbit inoculated with—					
(1) B. paratyphosus (A).	50,000	< 100	< 100	< 100	< 100
(2) B. paratyphosus (B).	2,000	20,000	10,000	—	< 100
(3) B. suipestifer.	< 100	4,000	5,000	5,000	< 100
(4) B. aertrycke.	< 100	5,000	5,000	5,000	< 100
(5) B. enteritidis (Gaertner).	< 100	< 20	< 20	< 100	50,000

All the observations were made by the macroscopic methods.

Absorption Tests.

The serum of an animal which had been inoculated with a given bacillus often agglutinates, not only that (homologous) bacillus, but also other allied (heterologous) organisms. Sometimes the agglutination titre of the serum for both the homologous and the heterologous organisms is practically the same, and their differentiation by agglutination tests alone is impossible. The same phenomenon is observed in the serum of patients suffering from a particular infection—e.g., enteric fever.

It has been found (Castellani, Boycott, Bainbridge) that under these circumstances a heterologous organism, when added to the serum, absorbs only its own agglutinins, leaving intact the agglutinin for the homologous organism; the addition of the homologous bacillus to the serum removes all the agglutinins formed in the serum in response to its injection into the animal. The absorption method is of very great value for the differentiation of closely allied organisms

[1] The chief characters of these organisms are as follows:—They give rise to the production of acid and gas in broth containing glucose, mannite, dulcite, lævulose, galactose, arabinose, maltose, and sorbite. No apparent change occurs in broth containing lactose, saccharose, salicin, raffinose, and inulin. No indol is formed. Litmus milk inoculated with B. paratyphosus (A) shows slight acidity persisting for three weeks or more; no clot is formed. Litmus milk inoculated with any of the other organisms shows an initial transient acidity not often lasting more than 24 hours. In three to five days the milk is definitely alkaline and at the end of a week intensely alkaline; no clot is formed.

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Delivered before the Royal College of Physicians of London

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It will be convenient, before discussing the different organisms, to give a brief historical *résumé* of the circumstances under which the various bacteria associated with these diseases were isolated, and then to classify them as far as possible.

In 1888, while investigating a large outbreak of meat poisoning Gaertner isolated from the suspected meat and from the spleen of a patient who died a bacillus which he called *B. enteritidis*. Ten years later Durham in England and De Nobele in Belgium independently and almost simultaneously isolated from cases of meat poisoning and from the meat a bacillus closely allied to Gaertner's bacillus. The new organism was called *B. aertrycke*, this being the name of the village in which occurred the outbreak recorded by De Nobele.

In 1896, Acharde and Bensaude isolated from the urine of a case of apparent enteric fever and also from a purulent arthritis following a similar illness a bacillus which they called the *paratyphoid bacillus*. And in 1900–01, Schottmüller obtained from the blood of patients whose symptoms were those of enteric fever two bacilli closely resembling the paratyphoid bacillus of Achard and Bensaude. These two organisms were named by Brion and Kayser B. paratyphosus (A) and B. paratyphosus (B).

The relationship between these four organisms was not at once recognised, but it has been shown during the last few years that they are very closely allied to each other, and also to *B. suipestifer*. This latter organism was isolated by Salmon and Theobald Smith (1885) from an outbreak of swine fever (also known as hog cholera and Schweinpest). They regarded it as the cause of swine fever and for some time its relation to disease in man was entirely unsuspected. It is now well known, through the work of De Schweinitz, Dorset, and McBryde, confirmed by others, that it is not the cause of swine fever, but is merely a secondary invader in that disease.

CLASSIFICATION.

The close relationship between these organisms necessitates the employment of rather laborious methods for their identification. Cultural tests are inadequate and must invariably be supplemented by agglutination and absorption tests.

Cultural Characters.

B. paratyphosus (A) differs culturally from the other members of the group in one important respect—namely, in its action upon litmus milk and in some minor details. The other four organisms are indistinguishable from one another by their cultural characters and their action upon carbohydrates.[1]

Agglutination Tests.

A further means of differentiation is furnished by the use of sera obtained from animals immunised with killed or living cultures of these bacilli. By the aid of such sera B. paratyphosus (A) and B. enteritidis (Gaertner) can readily be distinguished both from each other and from the remaining members of the group. *B.* aertrycke, B. suipestifer, and B. paratyphosus (B) cannot usually be separated by agglutination tests, although with some sera B. paratyphosus (B) can be distinguished from the other two bacilli.

TABLE I.—*Agglutination Reactions with Sera obtained from Inoculated Animals.*

—	B. paratyphosus (A).	B. paratyphosus (B).	B. suipestifer.	B. aertrycke.	B. enteritidis (Gaertner).
Serum of rabbit inoculated with—					
(1) B. paratyphosus (A).	50,000	< 100	< 100	< 100	< 100
(2) B. paratyphosus (B).	2,000	20,000	10,000	—	< 100
(3) B. suipestifer.	< 100	4,000	5,000	5,000	< 100
(4) B. aertrycke.	< 100	5,000	5,000	5,000	< 100
(5) B. enteritidis (Gaertner).	< 100	< 20	< 20	< 100	50,000

All the observations were made by the macroscopic methods.

Absorption Tests.

The serum of an animal which had been inoculated with a given bacillus often agglutinates, not only that (homologous) bacillus, but also other allied (heterologous) organisms. Sometimes the agglutination titre of the serum for both the homologous and the heterologous organisms is practically the same, and their differentiation by agglutination tests alone is impossible. The same phenomenon is observed in the serum of patients suffering from a particular infection—e.g., enteric fever.

It has been found (Castellani, Boycott, Bainbridge) that under these circumstances a heterologous organism, when added to the serum, absorbs only its own agglutinins, leaving intact the agglutinin for the homologous organism; the addition of the homologous bacillus to the serum removes all the agglutinins formed in the serum in response to its injection into the animal. The absorption method is of very great value for the differentiation of closely allied organisms

[1] The chief characters of these organisms are as follows:—They give rise to the production of acid and gas in broth containing glucose, mannite, dulcite, lævulose, galactose, arabinose, maltose, and sorbite. No apparent change occurs in broth containing lactose, saccharose, salicin, raffinose, and inulin. No indol is formed. Litmus milk inoculated with B. paratyphosus (A) shows slight acidity persisting for three weeks or more; no clot is formed. Litmus milk inoculated with any of the other organisms shows an initial transient acidity not often lasting more than 24 hours. In three to five days the milk is definitely alkaline and at the end of a week intensely alkaline; no clot is formed.

and seems to be particularly useful as regards this group. By its use, B. paratyphosus (B) can be readily distinguished from B. suipestifer and B. aertrycke, whereas the two latter organisms are indistinguishable from one another, as may be seen in Table II.

TABLE II.—*Absorption Reactions.*

—	—	Agglutination limit after absorption.		
		B. paratyphosus (B).	B. suipestifer.	B. aertrycke.
Serum of rabbit inoculated with— (1) B. paratyphosus (B).	Original titre	5000	1000	1000
	Absorbed with— B. paratyphosus (B) ...	200	200	200
	B. suipestifer	4000	< 200	< 200
(2) B. suipestifer.	Original titre	4000	5000	5000
	Absorbed with— B. paratyphosus (B) ...	< 200	4000	4000
	B. aertrycke	< 200	< 200	< 200

Complement Deviation.

Dean has shown that the complement deviation method yields results which correspond exactly to those obtained by the absorption method. He finds that unless a suitable dilution of anti-serum be employed the group antibodies will mask the specific nature of the reaction. They can, however, be removed by absorption previously to carrying out the complement fixation test. Thus, when B. paratyphosus (B) anti-serum is absorbed with an emulsion of paratyphoid (A) bacilli, the latter removes the group antibodies for B. paratyphosus (A), and B. typhosus, but not for B. paratyphosus (B), as is shown by subsequently applying the complement deviation test. Dean found that B. paratyphosus (B) could be differentiated from B. suipestifer and B. aertrycke, but that no difference between the two latter organisms could be demonstrated.

The methods employed for the identification of these bacilli are summarised in Table III. So far as can be judged

TABLE III.—*Method of Identifying the Members of the Salmonella Group.*

Description of organism.	Cultural characters.	Agglutination test.	Absorption test.	Complement deviation test.
(1) B. suipestifer or aertrycke.	Identical.	Usually indistinguishable.	Differentiated by this test.	Can all be differentiated.
(2) B. paratyphosus (B).				
(3) B. enteritidis (Gaertner).		Stands alone.	—	
(4) B. paratyphosus (A).	Differs from the others.	Stands alone.	—	

at present, B. suipestifer and B. aertrycke are indistinguishable from one another, and must be regarded as a single organism which has acquired two names. For several reasons it is preferable to use the name B. suipestifer rather than B. aertrycke. The other three organisms can be readily differentiated both from one another and from B. suipestifer.

The Salmonella Group.

I propose to describe these bacilli, including B. paratyphosus (A), under the term Salmonella group. Most writers exclude B. paratyphosus (A), but the advantages of including these four organisms in a single group are considerable. This name is also more distinctive than the expressions "intermediate" or "paracolon" group which are sometimes used.

In addition to these bacilli a number of organisms obtained by various workers from many sources is often included in the Salmonella group. They have usually received a name indicative of the source from which they were derived, or of the morbid condition with which they were associated. Such are (1) B. psittacosis, isolated by Nocard during an outbreak of illness occurring among parrots in Paris; (2) B. typhi murium, which has been found in mice; (3) B. morbificans bovis, which was isolated by Basenow from a diseased cow; (4) B. icteroides of Sanarelli; (5) B. Danysz and many others.

From the observations of others and of myself, it appears that all these bacilli are identical with one or other of the four organisms described above. Thus B. psittacosis is apparently identical with B. suipestifer, and B. Danysz and B. morbificans bovis are indistinguishable from B. enteritidis (Gaertner). Some of the strains described as B. typhi murium are identical with B. suipestifer, others with B. enteritidis (Gaertner), others, again, are mixtures of these two bacilli.

Nothing is gained by retaining this somewhat confusing array of different names for the same organisms; and it is both simpler and more accurate to regard the Salmonella group as consisting of only four organisms, namely: (1) B. paratyphosus (A); (2) B. paratyphosus (B); (3) B. suipestifer (or as an alternative name B. aertrycke); and (4) B. enteritidis (Gaertner).

This scheme of classification has recently been tested by Bainbridge and O'Brien. A large number of strains of bacilli belonging to the Salmonella group was obtained from food, or from cases of paratyphoid fever or meat poisoning. All the strains were readily recognised as identical with one or other of the above members of the Salmonella group. No anomalous strains were met with, and the investigation entirely confirmed the foregoing classification. They also found that all the strains of B. suipestifer were derived either from meat or from cases of meat poisoning, whereas all the strains of B. paratyphosus (B) were obtained from cases clinically resembling enteric fever or from persistent carriers after such an illness.

This classification is not accepted by most German writers, who do not make use of either the absorption or the complement deviation method for this group, and therefore draw no distinction between B. suipestifer and B. paratyphosus (B), or between paratyphoid fever and meat poisoning.

These four bacilli are evidently extremely closely related to one another, and their differentiation depends upon the use of rather delicate methods and requires careful technique. The differences, however, are constant and persistent, and I have found that the strains of these bacilli kept in the laboratory and tested from time to time during the last four years have remained absolutely stable in their characters. We shall see also that these distinctions, slight though they are, correspond with wide differences in the distribution of these bacilli and in the nature of the illness to which they give rise. I believe, therefore, that they may be regarded as entirely distinct species.

Experiments on Transmutation.

Attempts have been made, however, to show that transmutation may occur in the animal body, and even *in vitro*. Thus, Schmitt injected B. suipestifer into calves, and after a few days recovered from their blood in some cases a bacillus which corresponded in its agglutination reactions to B. enteritidis (Gaertner). Two experiments yielded a positive and three a negative result. He concludes that these two organisms are not different species, but merely varieties which can be readily transformed from one to the other in the animal body. These experiments are open to the criticism that the Gaertner's bacillus obtained from the calves may have been present in them before the injection of B. suipestifer. This possibility was not excluded by Schmitt, althought Gaertner's bacillus undoubtedly occurs at times in calves.

I have repeated this experiment by feeding healthy guinea-pigs with B. enteritidis (Gaertner) and subsequently examining their fæces from time to time. It was found that the same guinea-pig might yield in the culture at one time B. suipestifer, and at another time Gaertner's bacillus, and another time both organisms. The explanation has been shown to be that B. suipestifer is a frequent inhabitant of the alimentary canal of healthy guinea-pigs, and that in these experiments it was a matter of chance which organism was isolated.

The evidence that transmutation of these organisms takes place in the animal body is, therefore, far from convincing, and the difficulties in showing that these organisms undergo modification there are great. The fallacies which beset the question of transmutation in the animal body are largely eliminated in experiments made in vitro, and Sobernheim

and Seligmann claim to have observed the gradual transformation of culture of Gaertner's bacillus into B. suipestifer in the laboratory. This observation, however, has not been confirmed by others, and the transformation of these organisms cannot be regarded as proved.

Nevertheless, it may be conjectured that the members of the Salmonella group have arisen by a slow process of evolution from a common ancestor; and the fact that these bacilli, as we know them now, are usually found in different species of animals suggests that possibly they have become modified by prolonged existence in animals of a given species.

DEFINITION OF PARATYPHOID FEVER AND MEAT POISONING.

We may now proceed to define paratyphoid fever and meat poisoning before considering in detail the clinical and epidemiological characters of these two diseases, and the evidence on which the definition is based.

Paratyphoid fever may be defined as a disease which clinically resembles, and is often indistinguishable from, enteric fever, and which is caused either by B. paratyphosus (A) or by B. paratyphosus (B); the latent period varies generally from 8 to 18 days, and the usual mode of infection is by human carrier cases.

Meat poisoning is a disease of which the characteristic symptom is acute gastro-enteritis of comparatively brief duration, and which is caused in a very considerable proportion of cases by either B. enteritidis (Gaertner) or B. suipestifer; the latent period is short, rarely exceeding 48 hours, and the usual source of infection is contaminated meat.

Other definitions of paratyphoid fever—namely, that held by German writers and that recently suggested by Firth—will be subsequently considered.

PARATYPHOID FEVER.

The cultivation of a paratyphoid bacillus from the blood of a patient "with all the clinical features of typhoid fever" by Gwyn in 1898 represents the first definite diagnosis of a case of paratyphoid fever, although he described it as a "paracolon bacillus." Schottmüller found in similar cases two species of paratyphoid bacilli which Brion and Kayser labelled (A) and (B). The symptoms of enteric fever may be caused, therefore, either by B. typhosus or by B. paratyphosus (A) or by B. paratyphosus (B).

During the last few years a considerable number of cases of paratyphoid fever caused by B. paratyphosus (B) have been recorded; and the important investigations of the Royal Army Medical Corps workers in India have made extensive additions to our knowledge of the paratyphoid (A) bacillus fever. For the sake of convenience these two infections will be dealt with separately, although, as we shall see, their clinical features and epidemiology are practically identical.

PARATYPHOID (A) FEVER.

Paratyphoid fever caused by B. paratyphosus (A) occurs in most parts of the world, although curiously enough no case has yet been recorded in this country. In Germany 8 cases in all have been described. In France two epidemics have been recorded, one of 19 cases by Netter, and one of 16 cases by Nicolle and Cathoire. In America Proescher and Roddy examined 262 patients whose symptoms were those of enteric fever, and found B. paratyphosus (A) in 8 per cent.; the diagnosis was made by blood cultures and was confirmed by agglutination tests.

Paratyphoid fever in Europe is much more often caused by B. paratyphosus (B) than by B. paratyphosus (A). But the cases mentioned above suffice to show that paratyphosus (A) infection is not so rare in Europe as is sometimes supposed. There is no doubt, however, that it occurs much more frequently in Asia, and particularly in India, than in Europe. In India, indeed, paratyphoid (B) infection is almost unknown, and according to Castellani this holds good also for Ceylon. Paratyphoid (A) fever was first recognised in India by the members of the Enteric Fever Commission in 1906–08; B. paratyphosus (A) was isolated from four patients. Since that time cases have been described by Morrison, Harvey, Wood, Grattan, and others.

As soon as attention was drawn to the matter it became clear that paratyphoid fever was far from uncommon in India. In 1910 39 cases were isolated, and it has been calculated by Grattan and Wood that probably a third of the cases returned in India as pyrexia of uncertain origin are in reality cases of paratyphoid fever due to infection by B. paratyphosus (A). Since 4386 cases of pyrexia of uncertain origin occurred among the British troops in India in 1909, paratyphoid fever is evidently widely prevalent. A chart drawn up by Grattan and Wood shows that most of the cases have occurred in the northern half of India, although the disease has been recognised as far south as Poona. It has also been met with in Ceylon, Sumatra, and South Africa.

Prevalence as Compared with Enteric Fever.

The actual prevalence of paratyphoid fever caused by B. paratyphosus (A) is probably most readily realised by comparing it with that of enteric fever. Not only is the incidence of the latter in most countries carefully recorded, but also the large majority of paratyphoid fever cases have been met with in the course of investigations of outbreaks of enteric fever. For instance, during the years 1901–07 505 cases clinically resembling enteric fever were bacteriologically examined by Kayser in Strasburg; 473 of these yielded B. typhosus, whereas B. paratyphosus (A) was isolated in 5 cases only (just over 1 per cent.). In the series of 262 cases examined by Proescher and Roddy, B. typhosus was isolated from 11 per cent. and B. paratyphosus (A) from 8 per cent.

During the year 1910 there were in the British army in India 306 cases of enteric fever and 44 cases of paratyphoid (A) fever, the latter forming nearly 15 per cent. of the total cases. According to writers in India, the real percentage of paratyphoid cases, as compared with enteric fever, would be even higher if all the paratyphoid (A) cases were distinguished. Incidentally it may be noted that prophylactic inoculation against enteric fever does not seem to confer any protection against an attack of paratyphoid fever. Forty of the 44 cases of paratyphoid fever just mentioned had been inoculated previously against enteric fever.

Seasonal Prevalence.

In America most of the cases seem to occur in September and October, and the curve of incidence as regards the time of year closely follows that of enteric fever. So far as can be gathered, paratyphoid and enteric fever also occur for the most part at the same time of year in India—namely, the hot dry months of April and May.

Bacteriology.

In almost all the cases here referred to the bacilli were identified by both cultural and agglutination tests. They appear to correspond in all respects with strains of the bacillus isolated in Europe. One strain, however, isolated in India, although identical in its cultural characters with B. paratyphosus (A), was not agglutinated at all by a paratyphoid (A) serum. Nor did the serum of a rabbit inoculated with this organism agglutinate B. paratyphosus (A). A similar organism has been found from time to time by Morgan in the excreta of healthy men and of pigs. It is not agglutinated by the serum of animals inoculated with Schottmüller's strain of B. paratyphosus (A) and may be described as B. pseudo-paratyphosus (A), since it is analogous to the pseudo-Gaertner organisms described by Savage. It is apparently a harmless saprophyte, and it is desirable not to confuse it with the true B. paratyphosus (A). The omission of this precaution has led to erroneous statements as to the distribution of the genuine organism in man and animals.

Apart from cases of clinical paratyphoid (A) fever, the bacillus has been met with once in acute gastro-enteritis, on two occasions from the gall-bladder during operation for gall-stones, and in one instance from an abdominal abscess which followed paratyphoid (A) fever. It does not occur in healthy men except after an attack of paratyphoid fever. Nor has it been found (with one exception) either in the lower animals or in food or water. The distribution of the bacillus is practically limited, therefore, to cases of paratyphoid (A) fever, or to those who have become carriers as a sequel of this disease; and there can be little or no doubt that it is the cause of the illness with which it is associated. It thus resembles B. typhosus or B. paratyphosus (B), not only in being essentially an inhabitant of the human rather than the animal intestine, but also in its predilection for the gall-bladder.

Clinical Features.

The course of a typical case of paratyphoid (A) fever closely resembles that of mild enteric fever. The incubation

period varies from 10 to 18 days, and is usually about 15 days. The onset of the illness is gradual, the patient complaining of severe frontal headache and pains in the back and limbs. Bronchitis and sore throat are not infrequent. The temperature rises in a step-like fashion, reaching its maximum by the fifth or seventh day; it falls gradually and becomes normal at the end of the second week. In severe cases the temperature may remain raised for three or four weeks. In contrast with mild enteric fever the pulse is rapid and is quite often as much as 110; the frequency of the pulse in paratyphoid fever does not necessarily indicate that the attack is a severe one. The abdomen is slightly distended, the spleen is enlarged, and constipation is the rule. The typical rash (rose spots) is often present and other forms of rash—e.g., purpuric or morbilliform—are occasionally seen.

Relapses are not infrequent and phlebitis, cholecystitis, and anæmia are not uncommon complications. Intestinal hæmorrhage and perforation have been observed, but are rare. Although practically every symptom and complication of enteric fever also occur in paratyphoid (A) fever the majority of the cases are of a mild character; sometimes the illness is so slight that it may be readily overlooked, and ambulant cases have been met with.

Post-mortem Appearances.

I have met with only one record of a post-mortem examination (Grattan and Wood). In this case the man died from perforation of the only ulcer which could be found at the necropsy; the Peyer's patches were not obviously enlarged, but the lower part of the ileum showed signs of inflammation. The spleen weighed 6 oz. and the wall of the gall-bladder was thickened and inflamed.

Mortality.

The death-rate is very low; Proescher and Roddy place it at less than 2 per cent. During the year 1910, 44 cases occurred in the British army in India, all of which recovered. This striking difference between the mortality of enteric and paratyphoid (A) fever is of considerable importance. In the first place, the recognition of a given case as paratyphoid fever at once enables a favourable prognosis to be made. Secondly, the fact that a large number of cases which have been formerly described as enteric fever are paratyphoid (A) fever must considerably modify our views as to the mortality of enteric fever. In the British Army during the year 1910 there occurred 306 cases of enteric fever, with 47 deaths, a mortality of 15·3 per cent. If we add to these the 44 cases of paratyphoid fever which *formerly* would have been recorded as enteric fever we arrive at a mortality of 13·4 per cent.

Diagnosis.

1. *Isolation of the bacillus.*—The only certain means of diagnosing paratyphoid (A) fever is the isolation of the bacillus from the blood or stools of the patient during life, or from the spleen or other organs after death. Paratyphoid (A) fever is a septicæmia, and blood cultures made during the first week of the illness give a positive result in the vast majority of instances.

2. *Serum reactions.*—The diagnosis of this disease in India by the serum reaction of the patient is complicated by the fact that most of them have been previously vaccinated against enteric fever. In such instances it has been found that, even when the cause of the illness is B. paratyphosus (A), the agglutination titre of the serum for B. typhosus rises considerably, and may be higher than that for B. paratyphosus (A). Even under the most favourable circumstances the patient's serum rarely gives a positive reaction for the latter organism in a higher dilution than 1-100. Sometimes the agglutination of B. typhosus is marked, whereas B. paratyphosus (A) is not agglutinated by a 1-10 dilution of the serum. In other cases of undoubted paratyphoid (A) fever the patient's serum agglutinates at one time only B. typhosus, at another only B. paratyphosus (A).

Harvey and Wood have shown that the use of the absorption method often gives valuable information as to the true cause of the illness. In cases of paratyphoid (A) fever in which the patient's serum agglutinated both the typhoid and the paratyphoid (A) bacillus they found that absorption with B. paratyphosus (A) removed all the agglutinins present, whereas absorption with B. typhosus removed only the co-agglutinins for that organism, leaving intact the specific agglutinin for B. paratyphosus (A). The absorption method is also of value in those instances in which the patient's serum agglutinates B. typhosus but not B. paratyphosus (A); absorption with B. paratyphosus (A) removes all the agglutinins from the serum.

The variable and comparatively feeble production of agglutinins in paratyphoid (A) fever has been noticed not only in India but also in Europe, and it seems to be characteristic of infections with B. paratyphosus (A).

The fact that the serum of a patient suffering from enteric fever may agglutinate not only B. typhosus but also B. paratyphosus (A) must be taken into consideration. Boycott examined 86 cases of enteric fever, and found that in 48 of these the patients' serum contained secondary agglutinins for B. paratyphosus (A). The secondary agglutinin was usually small in amount, and only in one patient was the agglutination titre identical for both B. typhosus and B. paratyphosus (A). Occasionally, however, the amount of secondary agglutinin may be considerable. Mixed infection with the typhoid and paratyphoid (A) bacilli is also possible, although it has not yet been observed.

It is clear that as a means of diagnosing paratyphoid (A) fever serological observations are beset by many sources of error and need very careful technique. They cannot be relied upon as a trustworthy routine method of diagnosis.

Epidemiology.

Our knowledge of the epidemiological characters of this disease is entirely due to the work of the Royal Army Medical Corps in India. The accumulation of evidence as to its spread in India has been materially assisted by two factors. In the first place, a large proportion of the patients admitted to hospital as suffering from enteric fever have been vaccinated against this disease, and the occurrence of symptoms of enteric fever in vaccinated individuals has naturally caused their blood and excreta to be examined with unusual care. Secondly, in some stations the medical officers have been able to make almost daily examinations of the excreta of these patients over a period of many weeks or even months.

For these reasons attention has been more readily called to cases of paratyphoid fever which might have escaped diagnosis if occurring in an unvaccinated population. It is probable, indeed, that the prevalence of paratyphoid fever in India has become so evident partly owing to the comparative infrequency of enteric fever in the British army. However this may be, the routine examination of convalescent cases of paratyphoid (A) fever has yielded extremely valuable information with regard to the existence of human carriers of B. paratyphosus (A).

Carrier Cases.

During 1910-11 at Naini Tal enteric depot 10 carriers were discovered out of 157 convalescent paratyphoid cases. Nine of these carriers were acute and ceased to excrete bacilli within three months of the termination of their illness. In the tenth case the excretion of the bacilli ceased at the end of five months. All these cases were fæcal carriers; no urinary carriers were discovered. In this respect paratyphoid fever seems at first sight to differ from enteric fever, in which about 2 per cent. of the total cases become *chronic* fæcal carriers.

It may be noted, however, that almost all the paratyphoid (A) cases described in India occurred in men and that cholecystitis or other evidence of infection of the gall-bladder was comparatively rare. It will be remembered that the large proportion of chronic carriers of B. typhosus are women, and that many of them are suffering from disease of the gall-bladder. It seems not improbable, therefore, that the infrequency of chronic paratyphoid (A) carriers in India results from the special circumstances under which it has been studied in that country, and is not necessarily a constant characteristic. There is, in fact, definite evidence of the existence of chronic carriers of B. paratyphosus (A).

Blumenthal has recorded the case of a woman who was operated on for gall-stones. B. paratyphosus (A) was obtained both from the gall-stones and from her stools, although the patient had not recently suffered from paratyphoid fever. The organism was agglutinated by the patient's serum in a dilution of 1-300. Another chronic carrier, also a woman, was met with by Aoki; in this case the patient became a carrier after an illness resembling mild enteric fever, and her serum also agglutinated the bacillus.

Dr. Ledingham also informs me that he has met with a chronic carrier (a man) who had had paratyphoid (A) fever 8–10 years previously.

There appears, indeed, to be no essential difference between enteric and paratyphoid (A) fever as regards the occurrence and character of carrier cases.

Infection Caused by Carriers.

The comparative mildness of most cases of paratyphoid (A) fever in India apparently causes the true nature of the illness to be overlooked from time to time. Moreover, ambulant cases are not unknown, two having been described by Grattan and Wood. Cases of this kind are obviously liable, whether they become carriers or not, to serve as centres for the spread of the disease.

There is also strong presumptive evidence that patients who have recovered from paratyphoid fever, but are acute carriers, can give rise to outbreaks of this disease. For example, Harvey and Grattan have described a small outbreak (8 cases) of paratyphoid (A) fever in which the evidence suggested that the illness was caused by a cook who had recently suffered from this disease complicated by cholecystitis. The serum of the cook was tested and gave a positive reaction to B. paratyphosus (A), and shortly after he was found to be passing this bacillus in large numbers in his stools. The cases of paratyphoid fever began to occur a fortnight after the cook had been discharged from the hospital, and the last case was admitted 12 days after he was isolated for the second time. All the cases took place, therefore, during a period in which infection by this cook was possible, and only during that period. These facts point to this man being the actual source of the infection, the more so as other sources had been excluded as far as possible.

It is not known whether the more frequent source of the spread of the disease is infection by acute carriers or by unrecognised cases. Grattan and Wood, however, consider the acute convalescent carrier to be the chief cause of the spread of the disease in India. So far as can be gathered, there is nothing to show that water-supplies or flies play any part in the spread of infection.

A Clinical Lecture
ON
DERANGEMENTS OF THE KNEE FOLLOWING STRAINS AND BLOWS.

By ARTHUR E. BARKER, F.R.C.S.,

SURGEON TO UNIVERSITY COLLEGE HOSPITAL AND CONSULTING SURGEON TO THE QUEEN ALEXANDRA MILITARY HOSPITAL, MILLBANK, S.W.

GENTLEMEN,—It is impossible to say whether strains and consequent derangements of function of the knee-joint are more frequent now than some years ago, but I can vouch for the fact that one is consulted about these injuries more often nowadays than formerly, both in and out of hospital. Also that the varieties of lesions which one sees appear to be greater for some reason. This may be an actual fact, but is more probably due to the acquisition of a greater power of discrimination between the various mechanical lesions met with.

I want to-day to discuss with you some of these strains and blows and their consequences, in the light of many cases about which I have been consulted here in the hospital and elsewhere.

PARTIAL SEPARATION OF SEMILUNAR CARTILAGE.

To begin with, I may mention a case which I saw a few days ago with a fairly common history.

CASE 1.—The patient was an ardent football player, and last autumn, during a game, an opponent flung himself violently against the outer side of his left knee while the leg was extended and the foot was resting firmly on the ground. This, of course, forced the knee inwards and put a very severe strain on the internal lateral ligament. The pain was severe, but was described as seated over the outer side of the joint, and not the inner, where the chief strain would mechanically fall. It may have been due to the actual blow upon the outer side. However, this pain passed off, and—as I understood the patient—without any effusion into the knee. Then a month or so later in kicking off with the same leg he felt violent pain in the knee, this time on the inner side, at about the lower insertion of the internal lateral ligament. The accident was followed by great effusion, distending the synovial pouches on either side. This subsided in about four days, and when I was consulted three weeks later there was no trace of it. The joint appeared normal in every way except for a little tenderness over the internal lateral ligament. The only complaint made now by the patient was that if he kicked out with the limb he felt violent pain on the inner side of the knee. When walking he felt no trouble of any kind, and could flex and extend his knee without difficulty. There was never, he said, any catch or "locking" of the bones.

The interpretation of this condition is, to my mind, not quite easy. One's first thought is that it might be explained by the strain alone of the two lateral ligaments, and a certain amount of tenderness when any unusual tension was exerted on them, as in energetic kicking. But that view is not quite satisfactory, for it does not fit in with the absence of effusion on the first lateral injury, and the rapid filling of the joint and pain on the inner side with the second, the strain this time being applied in the movement of forced extension.

What appears more probable is that the first accident stretched the internal lateral ligament and capsule on the inner side of the knee. The internal semilunar cartilage being held in its place by its attachment to the capsule would be rendered more mobile by this loosening of the capsule. Remember that during flexion of the knee the internal semilunar cartilage moves normally backwards and towards the centre of this joint, following the convexity of the femur, the expansion of the quadriceps at the same time being lax. When extension begins the tendinous expansions of the extensor muscles are rendered tense over the front and sides of the joint, and with them the capsule underlying them. This should draw out the semilunar cartilage into its normal position as the femur slides upon the tibia. But if, as after stretching or partial tearing of the internal lateral ligament and the adjacent capsule, the semilunar cartilage has receded further inwards than normal, it can on extension be jammed between the condyle and the tibia, and held thus while the capsule and muscular expansion are drawn tightly outwards. The result of this is that the two bones are kept apart by the meniscus wedged between them, instead of following their movements, and as the leverage is great the internal lateral ligament is stretched and great pain is felt.

Besides this, the capsule, being drawn away from the fixed semilunar cartilage, is often more or less torn off its outer periphery, adding to the pain, as it is highly furnished with nerves. Neither the encrusting cartilage of the bones nor the meniscus is sensitive. The pain is always due to the strain or tearing of the ligaments and capsule. The rent between the outer border of the meniscus and the capsule may be very slight when the catch occurs for the first time, and I have seen it not more than half an inch long. But this is quite enough to increase the mobility of the cartilage and to admit of its receding further than before into the joint during each subsequent flexion, especially if combined with eversion of the tibia.

Such a strain as I suppose to have occurred in this case increases the liability to subsequent jamming of the meniscus between the bones, and, consequently, to extension of the rent begun by the preceding catch. In this way, by successive jamming of the free margin of the semilunar cartilage between the two bones, the capsule may ultimately be completely torn away from the thick border of the meniscus, which at last may be only attached to the tibia by its cornua, and otherwise float free in the joint as one has often seen. Such a separation rarely takes place as the result of one accident. It is the sequel to many separate catches and drags. Each of these strains produces more or less traumatic synovitis, which, as a rule, however, soon subsides. But in many cases each attack leaves behind it some hyperæmia and weakness of the joint, and as the problem of relief is purely a mechanical one the loose cartilage should be removed before the joint becomes permanently overstrained and damaged.

In the case above related I say that I believe the lesion to be a partial separation of the semilunar cartilage due to stretching of the internal lateral ligament and capsule. But one cannot be certain as yet and I have advised support of

the knee by an elastic bandage and easy exercise. If the pain persists on sudden flexion of the knee I shall advise an exploration of the joint. For it cannot be denied that as a rule a displaced meniscus is accompanied by some arrest of movement, either in extension or more rarely in flexion, and there is none in this case. And it may be that the pain on sudden extension in this case felt on kicking out may be due to the first stretching of the lateral ligaments, combined with some consequent synovitis and hypersensitiveness of the swollen membrane.

ENLARGED SYNOVIAL MEMBRANE.

That a swollen synovial membrane, after strains and blows on the knee, may give rise to symptoms closely simulating a displacement of the semilunar cartilage, is clear from many cases which we have seen and operated on. In these cases we have a history of injury such as a violent wrench of the knee, almost invariably with the foot and tibia everted. After this there is effusion, and when this has passed off a sense of weakness, which in the position of partial flexion often "lets the patient down." There may even be a slight catch or locking of the joint for a moment, but never in my experience a complete arrest of movement, such as we often get in typical dislocation of the meniscus.

Still there is evidence that the obstacle to the easy movements of the articulation is a mechanical one, and when on this ground we have felt justified in exploring the joint in some cases redundant fringes of hypertrophied synovial membrane have been found, and on their removal all symptoms have been relieved. They are usually most redundant behind the patella, and can be drawn into our usual incision and cut off with scissors. They consist of fringes of synovial tissue, thickened and swollen by inflammatory exudation.

All these cases of chronically enlarged synovial fringes do not require operation, however. Under treatment of rest, with blistering or the use of Bier's bandage, they may be reduced in size and give no more trouble. It is only when this treatment fails that they require excision. Another point about them is that they are often met with in rheumatic people, and the doubt may arise as to whether the pain is not all rheumatic.

RHEUMATOID ARTHRITIS IN THE KNEE.

This point opens up an interesting question. Many patients with more or less obvious rheumatoid arthritis of the knee-joint often develop after a strain or a blow, symptoms which suggest a displacement of a semilunar cartilage. There are pain and stiffness sometimes amounting almost to "locking" in one position. Here it is necessary to consider whether the movements are affected by irregularity of the joint surfaces due to the osteo-arthritis, or actually to a loosening or displacement of the meniscus. Both may be present. For it is well known that in rheumatoid arthritis the semilunar cartilages become less elastic and their surfaces less polished, as does also the cartilage covering the condyles, so that two factors are present likely to lead to their being caught between the bones when having receded between them during flexion they ought to return during extension.

This is a very difficult matter to decide on, and sometimes quite impossible without operation. For my own part I have long hesitated to operate in these doubtful cases. But in several, with some hesitation, I have opened the joint and found *both* conditions present. In these I have removed the meniscus, and afterwards cut away the osteo-arthritic excrescences at the borders of the bones, with complete relief. Of one of these I have heard since that he was climbing the mountains in Switzerland, and the other patient has recently consulted me about another ailment, the knee I had operated on giving him no further trouble. In other cases the treatment has been that for the rheumatoid condition alone, and has been as successful as could be expected.

TYPICAL DISPLACEMENT OF MENISCUS.

The history and symptoms of a typical displacement of the internal meniscus are so clear that they can hardly be mistaken. It is very rare for the external to be dislocated.

Please remember that the attitude of the knee, in which jamming of the thin edge of the cartilage between the bones is most likely to take place, is one of flexion, in-bending of the joint, and *eversion* of the tibia. This normally brings the cartilage well in between the condyles and the tibia as far as its peripheral attachments will allow it to go. The force applied will nearly always be such as to have produced this attitude if we inquire into it closely. It is sometimes a fall, sometimes a wrench at football, or a long jump, and often appears to develop slowly after a series of trifling jars, such as knocking the foot against the treads of a staircase in ascending or flinging the leg over a bicycle.

Symptoms.

But, however caused, the symptoms are the same. There is severe pain usually over the inner side of the knee, and a "locking" when the patient tries to extend the limb. This locking may be very transient or last for hours or days, and may disappear during sleep or after the limb has been well flexed and then inverted before being again extended. When it has disappeared the movements of the joint are perfect and painless unless there is much effusion, which is common, but does not last long. It may be weeks or months before another catch occurs, and in the meantime the patient may be unconscious of anything being amiss with the joint until after extension with the foot everted it may suddenly and unexpectedly get caught again with the same pain. The intervals between these attacks usually become shorter and shorter as the semilunar cartilage becomes looser. In a few cases the meniscus when quite detached, except at its cornua, seems to shrivel up into the intercondyloid notch and gives no further trouble at all, but such cases are rare.

Position and Amount of Detachment.

The detachment commences most frequently, in my experience, as seen in operations, on the anterior and outer aspect of the periphery of the meniscus, and the rent extends from this point forwards and backwards. But occasionally it begins behind the internal lateral ligament and extends only backwards, rarely until the posterior cornu is separated from the bone.

These are the cases in which it is sometimes difficult to detect the lesion when the joint has been opened, for the rent is hidden. But the separation is rendered clear by putting a small steel hook into the meniscus far back during extreme flexion and eversion of the leg and pulling it forward. If it is detached it will slip over the convexity of the condyle more or less, or actually into the anterior part of the joint, and be seen to be loose. In this condition it may often be possible to demonstrate the particular movements of the joint which dislocate it. For instance, it may be pushed back into its normal position and the knee extended once more. Then if the joint be slowly flexed with the leg everted, while the wound is held open, it may be seen at one particular moment that the cartilage slips over the convexity of the condyle with a sudden jerk and even a sound which are very characteristic.

It is remarkable what a small amount of separation of the external attachment of the meniscus is enough to produce definite symptoms of catching and pain in the joint. Several times I have seen on operating, where the evidence of displacement was clear, a rent of not more than half an inch long between the anterior border of the semilunar cartilage and the capsule stained by the remains of blood-clot and still showing the ragged, torn surface.

As a rule, however, where several "attacks" have taken place this ragged, torn surface is seen to have healed and become rounded and polished. But it is clear that it requires very little separation of the meniscus from its peripheral anchorage to enable its free margin to get caught between the bones, whether the rent be in the posterior or the anterior part of the periphery of the meniscus. This is hardly to be wondered at when the extremely delicate mechanism of the joint is considered.

Mechanism of Knee-joint.

The crude conception of the knee as a simple hinge is far from covering the whole mechanism. The play of each condyle on the tibia and semilunar cartilages has in some respects more of the elements of a ball-and-socket movement than is commonly supposed. And if there is any loosening of the various guiding ligaments in its movements, and particularly if there is any striation or loss of polish on the surfaces as the gliding takes place, derangements are not to be wondered at.

The mere play of the capsule over the "lipped" borders of rheumatic bones may also give rise to unusual dragging sensations in the movements of the joints, just as one has often seen one of the inner hamstring tendons caught either in

front of or behind a small exostosis which has appeared and grown larger and larger on the inner side of the head of the tibia. Moreover, an osteo-arthritic nodule on the border of the encrusting cartilage of either femur or tibia may interfere with the free play of the internal lateral ligament during flexion and extension and give rise to much pain and even a suspicion of derangement of the semilunar cartilage when a more or less sudden catch occurs.

It will remain for the future to determine whether in cases where we have reason to suppose that the osteo-arthritic nodules are in the way of either the capsule or lateral ligament it would not be proper to remove them by operation. In two or three cases in which after removing a displaced meniscus I have chiseled or pared them off, I thought the conditions were improved very much.

CHIPS OF ARTICULAR CARTILAGE FREE IN THE JOINT.

In addition to the effects of blows and strains just mentioned, it must not be forgotten that pieces of articular cartilage may be chipped off by direct impact upon the lateral aspect of the knee. I believe that it is usually the femur which is affected. So far I have only seen one quite unmistakeable instance of this in my own work.

CASE 2.—The patient was a girl who was struck sharply on the inner side of the knee, and who developed signs of "locking" after effusion had gone down. Nothing could be felt at first, but later a small solid mass which could be moved by the fingers could be felt at the inner border of the joint under the capsule. When manipulated it disappeared. I opened the joint and found a flattened scale of bone covered with encrusting cartilage, and also the depression on the border of the cartilage of the femur, from which it obviously had been broken.

The specimen is on the table before you. It is, as you see, about the size of a sixpenny-bit and four times as thick. I cannot imagine such a chip being broken off the tibia and getting free into the joint, for it would lie under the semilunar cartilage. Moreover, the configuration of the upper surface of the tibia is such that mechanically it would be difficult. Again, the femur, being much broader than the tibia, would receive most of the blows in that region before the tibia could be touched.

RUPTURE OF LATERAL LIGAMENTS.

Very violent wrenches to the knee-joint may produce some most interesting lesions short of the classical fractures of femur, tibia, and patella. Thus extreme extension may stretch or actually rupture the lateral ligaments.

The symptoms are undue lateral mobility when the limb is fully extended, with great unsteadiness on walking, if not complete inability to use the limb when the pain and effusion into the joint have subsided. It is well known that in full extension there ought to be no trace of lateral movement in the knee. But with rupture of the lateral ligaments this lateral rigidity is gone, for the external crucial ligament cannot restrain the bones when the supports at the side are removed. But besides this, a certain amount of rotation is present of tibia and femur, which becomes more free than normal in slight flexion.

This is a very serious injury, and it is questionable whether any operative treatment is likely to be of use. Immobilisation of the limb in slight flexion is probably the best we can do, care being taken that the fixation is not too prolonged.

RUPTURE OF CRUCIAL AND PROBABLY OF LATERAL LIGAMENTS.

Another result of violent strain on the knee was once described to me so clearly by a patient who came home for advice from Africa as to remove any doubt as to its nature which I might otherwise have had.

CASE 3.—The patient was a mining engineer on the Rand, and was overwhelmed, when down a shaft, by falling earth and rock. According to his description, this fell upon his bent shoulders and thrust him forwards while his legs were pinned firmly. When he was rescued one of his legs was much distorted. The tibia was, according to him, dislocated backwards into the ham, and the femur projected far beyond it forwards. The whole lower leg became black and threatened gangrene. Amputation was urged upon the patient as the only means of saving life, but was absolutely declined at no matter what cost. The surgeons on the spot recognised a total dislocation of the tibia backwards, and were hopeless of saving the limb or life except by amputation. On the patient's refusal, a last attempt at reduction was made and was successful.

To me the most remarkable fact about this case was this, that when the patient consulted me some months later he could walk well, and the movements of the joint were free and fairly firm. His object in seeking advice was really to know whether he would be wise to undertake the same work again. I advised him to go to his home, in the South-West of England, for a few months, and to have sea-bathing, when I should be better able to judge. At the end of that time he was quite well, and quite fit to return to his position in the mines. This case impressed me much. From his description, and from what the surgeons who saw him after the accident told him, I think there can be no doubt that there was a complete dislocation of the tibia backwards, and pressure on the popliteal vessels. It is hard to suppose such a displacement without rupture of the crucial ligaments, and probably of the lateral as well. And yet the result of reduction was complete restoration of the movements of the articulation, and ultimately of a firm limb.

The possibility of union of these ligaments when the limb is brought into good position seemed to me to be proved by this result. Another case, however, suggested a doubt on this point. Curiously enough this patient, too, came for advice from the Rand mines in Africa and had received his injury much in the same way. I recorded the case at the time in full[1] and now give you a digest of the report.

FRACTURE OF TIBIAL SPINE OR DEGENERATIVE CHANGES?

CASE 4.—The patient was aged 30 and perfectly healthy. When in the mine a large, flat stone fell from a height of about 20 feet upon his back as he stooped, and rendered him unconscious. When he recovered his left knee was much swollen and very painful. Ice was applied, but the swelling did not subside for 12 days. At the end of that time the knee was flexed by a doctor forcibly, producing a snap in the joint and a feeling of faintness for some hours. He was then treated by rest for five weeks in a plaster-of-Paris splint. On its removal he tried to walk for a fortnight and had again a plaster case applied for five weeks. After that only a leather splint was worn.

Condition on examination.—On entering my room the patient walked with a stiff leg, wearing the splint. On its removal the first thing noticed was a lateral yielding of the knee and a tendency when weight was thrown upon it to assume a position of genu valgum. It was evident that the patient walked with great insecurity and a distinct snap could be heard as the knee bent inwards and forwards. There was some pain, but the chief complaint was of the total absence of any sense of security in walking on the leg and its tendency to give way suddenly inwards with the snap described, which was quite audible at the end of a long room.

On examining the limb by passive motion there was a large amount of lateral movement of the tibia on the femur in the sense of lateral flexion. Rotation, also, of the tibia on the femur was much freer than normal. Slight over-extension of the knee was also possible. Lateral displacement of the tibia on the femur was doubtful, and if present at all was only so to a very small extent. On the other hand, the tibia could be suddenly slipped back either by passive movement or the patient could throw it back by muscular action himself. When thus displaced he could not bring it forward again by the action of the muscles, but with his hand in the ham he could easily bring it into position in a moment, but not beyond the natural limits.

Traction produced no trace of separation between the surfaces of femur and tibia. There was some thickening of the synovial membrane and slight crackling on movement. It was thought, also, that there was some lipping of the cartilage at the borders of the tibia on the affected (left) side, not on the right. There were no symptoms of locomotor ataxy and no "locking" of the knee in any position.

On first seeing the patient I was inclined to think that the internal lateral ligament was stretched or torn, and that this would account for the inbending of the knee. But when the tibia was seen to slip back on the femur, the possibility of rupture of one or both of the crucial ligaments, or tearing off of the spine of the tibia at once suggested itself.

The fact that traction on the tibia produced no separation of the bones appeared to negative rupture of the lateral

[1] Clinical Society's Transactions, vol. xxix., p. 11.

ligaments, and it was difficult to account for the very remarkable slipping back of the tibia on the femur except by supposing that the control of the crucials had been lost either by rupture or by the spine of the tibia having been torn away with them. The increased power of rotation of the tibia on its long axis appeared also to favour the view that the lesion was in or about the crucial ligaments. The description of the accident, in which the knee was probably forcibly over-flexed, lent support to this view.

As to treatment of this case it was quite clear that immobilisation of the joint for just one year had been productive of no benefit, and further rest offered but little prospect of improvement. On the other hand, if the joint were opened and a lesion either of the crucial ligaments or of the spine of the tibia were found, it was problematical that any fixation of the ruptured tissues could be brought about. It seemed, however, possible that perhaps though I might not be able to suture the ligaments or pin down the spine of the tibia, after so long a period, still the opening of the joint and the mechanical irritation might provoke enough plastic exudation in the ligaments and capsule as to thicken them and perhaps lead to their shrinking somewhat and so giving more support to the joint. Should any greater stiffness result from faulty asepsis the limb would be more useful than in its present flail-like condition. After this was explained to the patient he was eager for operation.

Operation.—I performed it as follows. A transverse cut was made across the middle of the patella and it was sawn across. The capsule was divided in the same line as far as the lateral ligaments, which were left intact.

The knee was then flexed, and it was seen that there was very little osteo-arthritic "lipping" of the femur. The synovial membrane was everywhere hyperæmic and swollen, and its fringes were hypertrophied. The cartilage of the femur was striated, and over the outer condyle on its lower surface there was an area of erosion of the cartilage which was ragged, though the bone was not exposed. The anterior or external crucial ligament was intact. To obtain a more complete view of the joint a vertical cut was made downwards on each side from the ends of the transverse incision for an inch or two, and the resulting flap was turned down with the lower half of the patella.

The semilunar cartilages were now seen to be in their normal position. Round the outer side of the spine of the tibia there was an irregularity of the articular cartilage between the ends of the outer semilunar cartilage. From this a groove passed round the base of the spine of the tibia. This groove was large enough to take the end of a dissecting forceps or blunt periosteal elevator. When these were pressed into the groove they did not touch bone but rather soft tissue. The groove had all the appearance of having resulted from a horizontal fracture of the spine of the tibia with imperfect co-aptation of the broken surfaces.

With a blunt elevator I made a cautious attempt to move the fragment, and thought at one moment that it was not fixed. But this was uncertain. At all events, it seemed improbable that any good would result from pegging it, even if it were loose. One had to recognise that the derangements present could be produced by changes of measurement of only a millimetre or two. Nothing further was done except to wire the patella and stitch up the capsule first and then the skin. There was no drainage.

The wound healed perfectly under one dressing, and the limb was kept upon a splint for some weeks. The patient went on a visit to his friends five weeks after operation. I next saw him at my house three months later. He walked into the room with a good deal of stiffness, but stated that the limb was far more useful to him than before the operation, and that he was soon going back to his work in Africa. On manual examination I found the patella moveable and a certain amount of flexion possible. There were still some fulness about the knee and a little tenderness. The patient was well content with the result, which gave him a much firmer joint. He had not yet attempted to flex the knee actively, and I cautioned him against doing so for a long time to come, although I was able to bend it by passive movement. He promised to abstain from over-exertion.

In this case the alternative diagnoses considered before operation were either rupture of the external crucial ligament or tearing off of that part of the tibia into which the latter is inserted. The operation showed a groove round the base of the tibial spine, which may have represented the result of this fracture, but may have been due to degenerative changes in the cartilage, the result of rheumatoid disease. It also showed, I thought, that no efficient pegging-down of the fragment could be done after so long a lapse of time, though I believe this operation has since been performed in some fresh cases of the lesion.

A case was also shown at the Clinical Society by Mr. Stanley Boyd about the same time as this one in which the diagnosis was rupture of the external crucial ligament. The tibia in his case could be thrown both in front of and behind its normal axis. In my case it could only be jerked behind it, and when brought forward only came into its normal position.

I saw my case for the last time more than a year after operation. He walked well, and none of the abnormal movements observed were now present. Flexion was still somewhat limited, and I urged the patient still to abstain from forcing it. He was about to return to Africa, and was well contented with the result of the operation.

Besides the results of blows and strains of the knee-joint given above, you must remember that a blow may knock off a *rheumatic nodule*, which will then give all the symptoms of a loose body in the joint requiring removal by operation.

EFFUSION OF BLOOD.

Another cause of troublesome effects due to knocks and strains is the blood effusion which often follows them. This may be either into the cavity of the joint or into the tissues outside the synovial membrane.

From the first several different troubles may arise; the blood may clot and shrink into fibrinous masses and become rolled into pellets, playing henceforth the rôle of loose bodies and giving rise to the same symptoms until they are removed by operation. Doubtless, when the amount of blood is small the clots are broken up and absorbed in many cases. But these fibrinous masses are found when the blood is not absorbed.

Again, a large effusion may take place, remain unabsorbed, and cause irritation of the surfaces to an extent sufficient to produce plastic exudation. If this become organised the result is more or less fibrous ankylosis of the joint. This is clearly seen in a well-known preparation made by Volckmann. It was a case of simple transverse fracture of the patella treated on splints without any operation. Complete stiffness of the joint resulted, and the specimen was subsequently obtained. A frontal section through the joint shows an intimate union of the femur and tibia by firm fibrous tissue.

The reason why blood effused into one joint will produce distinct irritation of its surfaces and into another very little or none is not clear, and the various theories held in regard to the point would carry us too far to-day. But the fact remains. The removal of this blood is always indicated if it is seen to distend the joint, and this may be done with an aspirator, or in rare cases by an incision where the clots cannot be drawn off through the aspirator.

When blood is effused as the consequence of blow or strain into the tissue of and around the synovial sac, but not actually into the joint, it may also give rise to thickenings and rigidity of the membrane which cause a good deal of stiffness in movement.

Such patients are inclined to avoid all flexion and extension, or to keep the part fixed more or less in flexion. This is a serious matter if it be allowed to persist too long, especially in neurotic patients. There is considerable danger that the free play of the joint may be damaged unless passive movement and massage be begun fairly early and continued regularly.

These are the cases in which such remarkable results are obtained by forcible flexion and extension under an anæsthetic after all acute signs have passed off. They often bring much credit to the so-called "bone-setters," who announce that the joint "is out" and promise to put it in. What they really achieve is a breaking down of adhesions and restoration of movement. But you can do the same and ought to do so when you have sufficiently studied these conditions and are sure that you are not dealing with a latent tuberculous process which would be injured by forcible movements as I have seen after manipulation by a bone-setter.

HYSTERICAL AFFECTIONS OF THE KNEE.

It would lead me too far to-day to speak to you at any length of so-called hysterical affections of the knee which so often follow injury by strain or blow and which make up a very considerable proportion of the cases about which you are consulted. But you must always bear in mind that such cases are common and be on your guard.

I will mention one very remarkable case sent to me from a distance in July, 1910, to illustrate the need of great care in dealing with them and to what extent we may be deceived by them.

CASE 5.—The patient was an unmarried, healthy-looking woman, aged 27. When ten years old she had had her right foot accidentally trodden on and crushed, and it was some years before the hurt was healed. Since then she said she was unable to walk for 17 years—i.e., up to the date of admission. She underwent several operations, and was at last given up as hopeless. Some scars about the popliteal space suggest tenotomies.

Condition on examination.—The foot was pointed, the knee flexed to a right angle, and the thigh and hip were fixed in strong flexion and adduction. Nothing in the way of traction could alter the position of the limb either at the hip or knee, and the doctor who sent the patient to me referred to the condition as one of ankylosis of many years' standing—a view which, I believe, was endorsed by those who saw her first at hospital.

The history of not having walked for 17 years seemed to support the view, as did the facts that traction on the hip only produced lordosis, and traction on the knee caused no change in the attitude of the joint of right-angled flexion. It struck me, however, after one or two examinations that when one tried to extend the knee the hamstring muscles undoubtedly acted strongly, while an attempt at flexion was followed by a hardening of the extensors of the knee. As the joint was not tender there was no reason for this, and the patient's expression and whole demeanour suggested a highly neurotic person.

Examining further, I was convinced that there was no organic disease in hip or knee, and never had been; that the patient had been simply contracting both joints to avoid walking for reasons which appeared sufficient to a so-called hysterical woman. How she could have kept up this deception or self-deception for 17 years and undergone several operations on the limb is one of those mysteries about such cases which have yet to be explained.

Straightening of the limb under spinal anæsthesia.—The remedy appeared obvious: to give an anæsthetic and straighten the limb. But as I wanted the patient to see for herself that all the motions of hip and knee were perfect, and not only that, but to realise that all present in the operating theatre could vouch for her deception, I gave her spinal analgesia instead of a general anæsthetic. When sensation and motion were gone I took away the screen, and while she looked on carried both joints easily through all their normal movements, to her utter confusion. And not only this, but took hold of the foot which she had always complained of being exquisitely painful and stiff and forced it about in various directions, while she looked on in amazement and apparent chagrin. The limb was then kept extended on a splint, and the foot, which was, of course, atrophied by long years of disuse following the suppurative condition, had to be rubbed and gradually strengthened before it could be well used.

At the end of a fortnight she was walking about the ward with some stiffness, and the sole of the foot was not yet flat on the ground. But this was not to be wondered at considering the atrophic changes that could take place in all the structures of the part during 17 years. She got stronger and stronger every day and left the hospital just five weeks after the two "ankylosed" joints (!) had been proved to be quite sound, but still limping a little on the atrophied foot, as was to be expected.

The moral effect of seeing the three joints—hip, knee, and ankle—which she had been holding rigid for 17 years flexed and extended, and as regards the ankle, rather forcibly dealt with, was very great, and as she was witness to it herself there was no escape. A general anæsthetic would almost certainly have left her unconvinced. The publicity of our demonstration while she herself looked on brought conviction without a possibility of doubt.

HYPERSENSITIVENESS:

THE PARALLELISM IN THE PHENOMENA OF HYPERSENSITIVENESS AND CERTAIN CLINICAL MANIFESTATIONS OF OBSCURE NATURE.[1]

BY H. BATTY SHAW, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; LECTURER IN THERAPEUTICS, UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL; AND ASSISTANT PHYSICIAN TO THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.

Two or three years ago I overheard your secretary put a question to a colleague of mine which interested me very much, and for the reason that the inquiry was one which for years had required a solution, and just at that date there was little known which could in any way provide a solution. Dr. C. H. Hall raised the question, "Why it was that a healthy woman recently confined suddenly became comatose, and as quickly recovered completely?" I need not give you reasons why this unanswered question should have remained in my mind to the present moment, but the incident recurred to me when the same interrogator asked me if I would address you on the present occasion. It seems to me that a good reason why a teacher of medicine should undertake to address a number of practitioners like yourselves may well be that there is the necessity to place before you new facts and theories which since your own student days have come to the front to explain those hiatuses in medical knowledge which every medical man has to face when he settles down to the calls of general practice. The episode already referred to is a case in point.

Before attempting to give an answer to the problem raised, and other problems of kindred obscurity and importance, certain spade-work must be carried out by an attempt on my part to put before you certain new conceptions. Those conceptions have been attained to by the carrying out of animal experiments.

What is Hypersensitiveness?

The term "hypersensitiveness" is chosen with the distinct intention of endeavouring to avoid too technical language. It expresses in English a condition in which an animal is made more sensitive, rather than less sensitive, to the effects of certain poisons. Though the effects of a first injection may be *nil* or very small, those of a second may be severe, and always are characteristic.

It is interesting to note how the phenomena of hypersensitiveness came under observation. When this address is finished if any of you would recall the earlier experiments from which so much that is of importance to you, as I hope to show, has had its birth, I think you will admit, if ever you hesitated, that it is essential for advance in medicine that as a nation we must make provision for more research even though many of the objects of research appear to have little practical bearing.

It will provoke a smile when I tell you that the whole of this address has as its inspiration some of the countless investigations which have followed a simple observation made by Richet and Portier nine years ago, that if a preparation made by powdering up the tentacles of a sea anenome is injected on two occasions into a dog the second injection is followed by a group of symptoms which are familiar to every medical man—dyspnœa, vomiting, blood-stained evacuations, collapse, and death. The condition of the animal which rendered possible the occurrence of such symptoms was spoken of by Richet and Portier as anaphylaxis; to-night we use the term hypersensitiveness instead, which is more homely and a good deal in use amongst English and American writers. In fairness to other workers, it must be at once stated that some of the observations made by these two workers had been anticipated by v. Majendie, Flexner, v. Behring, Knorr, Kitashima, and others, but to Richet and Portier is due the crystallisation of the theory of hypersensitiveness.

The Expansion of Richet and Portier's Observations.

At first sight nothing could appear more alien to a consideration and explanation of the symptomatology of disease in man than this brief description of Richet and Portier's

[1] A paper read before the Watford Medical Society on Nov. 17th, 1911.

experiments. In the first place, the hypersensitiveness developed in the dog was produced by the introduction of derivatives of quite a different form of life; secondly, the route of introduction was one which can hardly occur in human pathology except as a result of trauma—a factor which has a somewhat limited application in medical disorders. Richet introduced the foreign substance by a route other than the alimentary canal.

These two points have, however, attracted the attention of Richet and Portier and numerous other workers, and the net result to-day is that it may be said that symptoms of hypersensitiveness may be produced whenever certain proteins derived from the vegetable kingdom are introduced into the body of an animal; or when proteins derived from one animal are introduced into another animal of different species. It will be subsequently seen that the field has been enlarged, and in a most important way so far as human pathology is concerned, for the organs of an animal have been shown to provoke the phenomena of hypersensitiveness when injected into the same animal. The results are more likely to follow if the protein is introduced by a route other than the intestinal one—e.g., through the veins, into the cellular tissues, or into serous cavities such as the peritoneum or upon mucous surfaces such as those of the nose and eye, or even into the heart.

To attempt to put before you the stages of those experimental inquiries would be impossible in this address; already one writer is able to give the number of papers bearing on the subject as 422. No doubt, however, there are many amongst you who will have noted that already there is some reason to feel that Richet and Portier's experiment, after all, has something to do with the explanation of some of the phenomena met with in practice in view of the expansion of their ideas and observations. Are you not already familiar with the various manifestations which occur after the use of anti-diphtheritic serum?—the joint pains, the fever, the rashes, and general disturbances which occur some 11 or 12 days after the injection. It is true that these phenomena occur after but *one* injection of serum in only a small proportion of the cases; but when it is remembered that similar and more intense symptoms may occur, and more frequently, after a second injection of the serum, then you will realise still more readily that the subject of the hypersensitiveness is of importance to you.

The Symptomatology of Hypersensitiveness.

The first purpose of this address is to put before you the various symptoms produced experimentally in animals when hypersensitiveness is induced; also to detail those symptoms which investigations have shown to occur when hypersensitiveness is induced in man as a result of the neo-therapy by means of vaccines, sera, &c., and then to ask you to recall certain symptoms present in familiar maladies, the nature of which is a perfect enigma even in these days of investigation, and to see whether it is not possible for us by a comparison of the known with the unknown to reasonably speculate as to the true nature of the latter.

"*Hypersensitive*" *Symptoms: (a) In Dogs.*

The animal will show a curious exaltation: it will become restless and tug at its chain within 30 seconds of the second injection of horse or ox serum; there will be prompt efforts at vomiting, the urine and stools will be voided, and in a short time the animal will become quiet; it will become so weak as to be unable to stand; it falls about, eventually appears to be paralysed, and lies with outstretched legs breathing quietly. Dyspnœa, however, is never noticed. The corneal reflexes persist. By touching the animal or stimulating the skin reaction will occur. The paralytic stage—although often disturbed by powerful efforts at expiration, by vomiting and evacuation of stools—is marked by general depression, muscular weakness, and strange to say, by complete anuria. The animal may succumb after several hours or quickly recover and the next day be no worse for the stormy experiences above related. Sudden death is never noticed following immediately on the re-injection.

Even more remarkable results are found if observations are made on the blood pressure during the condition of hypersensitiveness. A decided fall occurs, and with this fall there is a remarkable increase of the pulse-rate and the development of a small pulse. You will recall that a blood pressure trace shows in a normal animal considerable fluctuations in the pressure curve determined by the respiration, but in the condition of hypersensitiveness such influence is gradually lost. With the recovery of the animal in some hours the respiratory influence on the pressure trace is restored to normal. Of all the above symptoms, one of the most reliable manifestations of hypersensitiveness, even when its degree is slight, is this fall of pressure.

It has been shown that this remarkable phenomenon is dependent upon vaso-dilatation, particularly of the splanchnic area, and possibly this is the explanation of the hyperæmia and congestion of the abdominal viscera which is associated with increase of the intestinal peristalsis and the evacuation of liquid stools. Lest the fashion of former physiological teaching should indicate that this is due to central disturbance of the nervous system, it is necessary to point out that really it is due to peripheral vasomotor paralysis, for adrenalin—which operates on the neuro-muscular junction—when subsequently injected is incapable of producing the familiar rise of pressure which it ordinarily brings about.

Other remarkable changes are those found in the blood—a great reduction of the coagulability of the blood and an extraordinary reduction of the leucocytes, the polymorphonuclear cells almost disappearing.

(*b*) *Guinea-pigs and Rabbits.*

Guinea-pigs show most remarkably all the above symptoms, but owing to special anatomical features of the animal it is much less easy than in the above experiments to inject by the venous route. Injections in these animals are made, as a rule, into the peritoneal cavity, and the effects are more slowly and gradually developed.

It has been possible at the hands of only some workers by intravenous injection to produce in the guinea-pig hypersensitiveness ending after a long interval in death, as in the dog. After intravenous injections the guinea-pig as a rule manifests immediate symptoms much more quickly, and we meet with sudden dyspnœa as a sign of excitation. Cramp of various groups of muscles suddenly develops—e.g., in the muscles of the chest, in the diaphragm, and in the respiratory abdominal muscles. In a short time all respiratory movements are cramp-like, and the animal dies cyanosed. A still more peculiar occurrence in the guinea-pig is the immediate rise of blood pressure, not a fall as in the dog, which soon, however, with impending death falls to nothing. The temperature in fatal cases falls, but not very much below the normal level.

The post-mortem examination of these guinea-pigs shows extreme emphysema dependent upon expansion of the alveoli, and the large and small bronchi are strongly contracted, the mucosa being plicated; this latter phenomenon has been shown to be due to cramp of the bronchial muscles. No doubt death is largely due, therefore, to asphyxiation.

If the second injection of serum is made by the intraperitoneal or subcutaneous route, the guinea-pig will still show great restlessness and terror; the urine and fæces will be evacuated, and there is developed a sort of pruritus, occasioning scratching of the skin. Dyspnœa eventually develops, and great depression, and even Cheyne-Stokes breathing, has been noted. Owing to the slower course of the hypersensitiveness in intraperitoneal injections it is possible to make more protracted observation on the temperature, and this is found to fall very considerably. Emphysema is not so exquisitely developed in these conditions. The blood pressure also constantly falls instead of rising at first. Death in such cases is not so much due to asphyxia as to the fall of blood pressure. Paralysis and coma are met with in the cases which end fatally. If the second injection is made under the skin, there may be local necrosis and hæmorrhage at the site of the first injection. A still more remarkable effect is the reduction of complement, a biological agent which abounds in this animal normally. Leucopenia and diminution of the coagulability of the blood are met with in these animals just as in dogs.

The rabbit shows similar reaction, but to a much less degree. Injections of emulsions of the organs such as the liver, kidney, spleen, &c., produce identical results if they are used instead of serum.

(*c*) *In Man.*

So far our knowledge of the symptomatology of hypersensitiveness in man is confined to the results of injections of normal or antitoxic serum when introduced subcutaneously or intravenously. Symptoms develop after a single injection

in about 6·45 per cent. of all the cases, and this group of symptoms is the expression of what is known as the "serum disease." It is not at present quite clear why there should be this natural hypersensitiveness; but it has been noted that certain asthmatic patients are rather more inclined to suffer after the injection of serum than are those free from this symptom-complex. If a second dose of serum be given a few days later (say about 10 days) then symptoms occur which are readily perceived to be due to hypersensitiveness brought about by the earlier injection.

CHART 1.

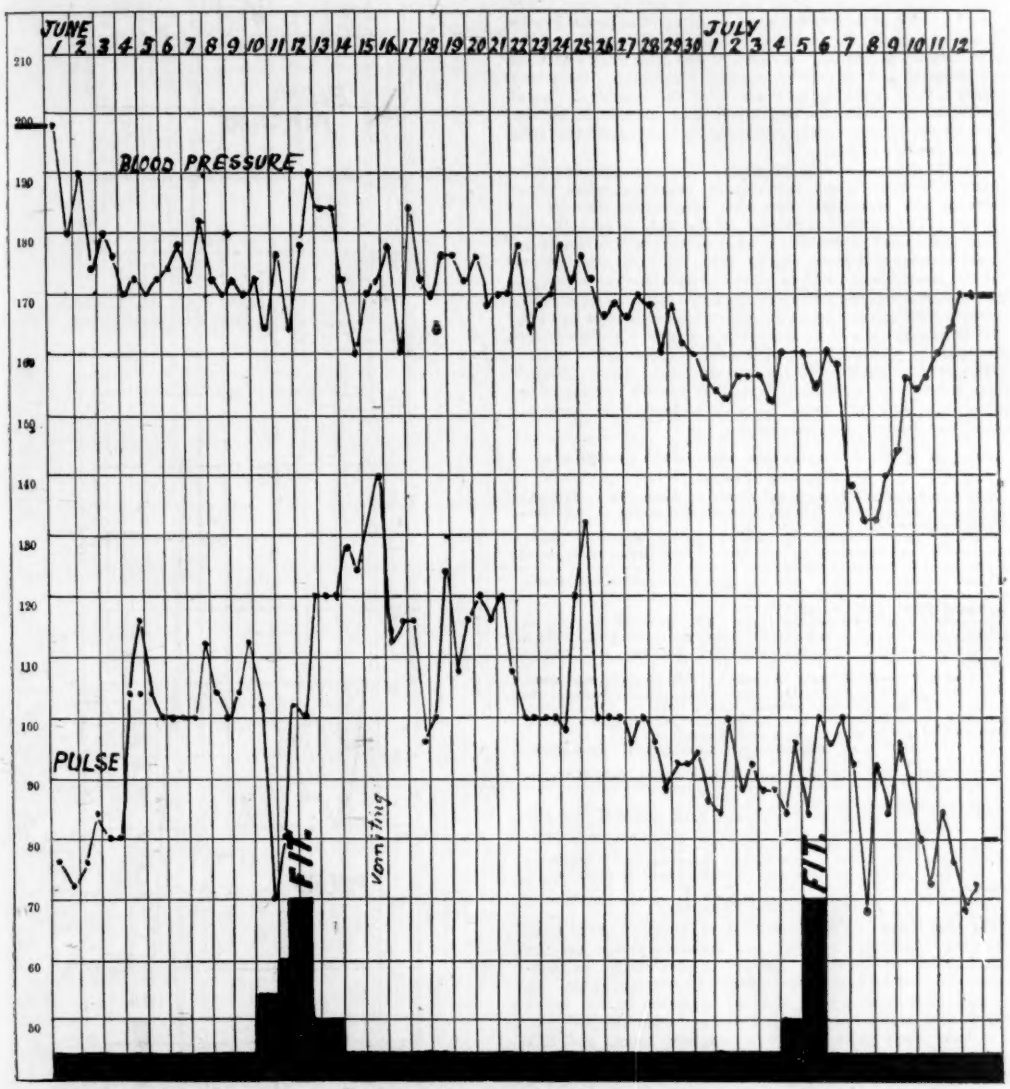


Chart of blood pressure and pulse-rate, showing two attacks of loss of consciousness. Blood pressure in millimetres of mercury.

Symptoms of the "Serum-Disease"—i.e., Symptoms following a First Injection of Serum.

These symptoms are already familiar to you. As a rule, they develop within 7–12 days after the first injection, the time depending upon the individual and upon the mass or concentration of the dose of serum. The occurrence of the symptoms has been reduced to the low figure of 6·45 per cent. by using smaller volumes of serum of a higher value than when anti-diphtheritic serum was first introduced. It is important to realise that these signs do not arise at once; there is a pre-hypersensitive period—i.e., an interval of incubation during which subtle changes are taking place within the body.

Swelling takes place at the site of the injection which is suggestive of urticaria; there is also irritation at the site of injection, and the associated lymphatic glands swell. The rash spreads and may involve the whole body and may assume the character of measles or scarlet fever, or may even be polymorphous. When general symptoms arise, all the lymphatic glands may be enlarged and may be tender.

In only 1·9 per cent. of the cases joint symptoms occur, and it has been surmised that the changes in the joints are of the same order as the skin changes. Œdema of the face may occur and may affect other parts of the body, even the glottis. Albuminuria occurs too, but is rare. Diarrhœa and diffuse bronchitis are also met with. During the incubation period, the leucocytes increase very much, and this increase

is followed by a leucopenia in which the polymorphonuclear cells are diminished. There is a rise of temperature which may last through a fortnight, but general symptoms are not marked. Complete disappearance of symptoms is the rule.

Symptoms following a Second Injection of Serum.

There is considerable variation in the symptomatology of a second injection of serum in man which depends to some extent upon the interval which elapses between the two injections.

(*a*) *The immediate effects.*—The second injection produces changes at the site of the first injection, and especially important is œdema; local necrosis is not known. There may be a rise of temperature and swelling of adjacent glands in a few hours. Urticaria with extreme irritability of the skin may be a feature. Œdema of the face occurs without albuminuria, and there is a marked leucopenia. Only very rarely is there collapse as a result of the injection. Local symptoms are more marked in children, general in adults. General symptoms usually subside in 24 hours, and local ones within two to five days.

(*b*) *The deferred or delayed effects.*—The most characteristic features develop when the second injection takes place between the forty-fifth and 180th day after the first injection. They show themselves on the fifth to seventh day after the second injection—a circumstance which should be noted because it is much shorter than the incubation period for the development of symptoms after the first injection. The symptoms of hypersensitiveness are much more marked, develop with greater rapidity, and subside also more quickly.

If the second injection takes place within six days of the first one no symptoms of hypersensitiveness occur at all. Between the twelfth and fortieth day there may be immediate effects, but no delayed ones. If the second injection takes place after the 180th day then no immediate reactions occur, but delayed ones may occur.

Analysis of the Symptoms Met with in the Condition of Hypersensitiveness.

Respiratory system.—Tachypnœa, attacks of spasmodic or irregular breathing, Cheyne-Stokes breathing, bronchitis, spasm of the bronchioles, emphysema, œdema of the lung.

Muscular system.—Spasm of certain groups, tonic or clonic, especially of those concerned in respiration. Paralysis or weakness of all muscles. Relaxation of sphincters.

Digestive tract.—Vomiting. Blood-stained, loose, and frequent stools. Increase of intestinal peristalsis.

Urinary system.—Anuria, albuminuria.

Circulatory system.—Generally marked fall of blood pressure (in guinea-pigs according to circumstances a brief rise); collapse and death (vaso-motor paresis). Frequency of pulse increased and volume reduced.

Nervous system.—Excitation. Depression. Fits, paralysis, and coma.

Cutaneous system.—Pruritus, local necrosis, and hæmorrhage (at site of injection). Localised and general œdema (without albuminuria). Morbilliform, scarlatiniform, erythematous, or polymorphous rashes. Œdema of the glottis (akin to œdema of the skin).

Blood.—Diminution of coagulability. Leucocytosis. Leucopenia. Reduction of complement.

Temperature.—Rise or fall (apparently in part due to effect of "mass dose").

Joints.—Symptoms of pains, &c.

Post-mortem investigations.—Emphysema with dilatation of alveoli. Spasm of bronchial muscles with plication of mucous membranes. Congestion of abdominal viscera, hæmorrhagic stools.

Issue.—Recovery. Death. Liability to recurrences with repetition of injection. Increase, not decrease, of sensitiveness by repetition of injection.

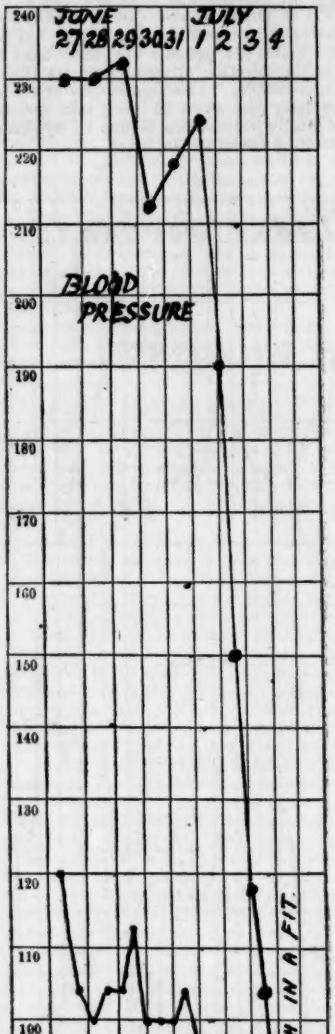
Parallel Clinical Phenomena.

We now come to considerations of parallel phenomena occurring clinically, but yet not apparently due to the introduction of protein matter intravenously or subcutaneously, or by any known route. I am going to ask you to fall back upon your clinical experiences to recall phenomena which have puzzled you and even alarmed you. You have been quite unable to explain them, and this ignorance has brought in its wake a feeling of insecurity, for you are not able to foresee their occurrence or recurrence, nor are you able to deal with them satisfactorily.

Disorders of Respiration.

The phenomena of so-called *asthma* are only too well known to any practitioner. Asthma may depend upon nasal disorders (for example, nasal polypi), upon disease of the heart (e.g., on mitral stenosis), upon renal disease, and, finally, there is a group of asthma cases which are attributable to spasm of the bronchial muscles. The mechanism by which each of these primary disorders is brought about remains a puzzle. Hay fever or the pollen disease alone has received an explanation which possesses anything like definition; the

CHART 2.



Blood pressure and pulse-rate chart, showing great fall in blood pressure preceding death in a fit.

remaining forms are unexplained or the explanations given are unsatisfactory.

Emphysema is recognised as dependent upon a variety of causes, but excluding those which appear to depend upon laborious muscular work, athleticism, the blowing of wind instruments, little has been done to explain cases in which none of these factors come into play, and they are very numerous.

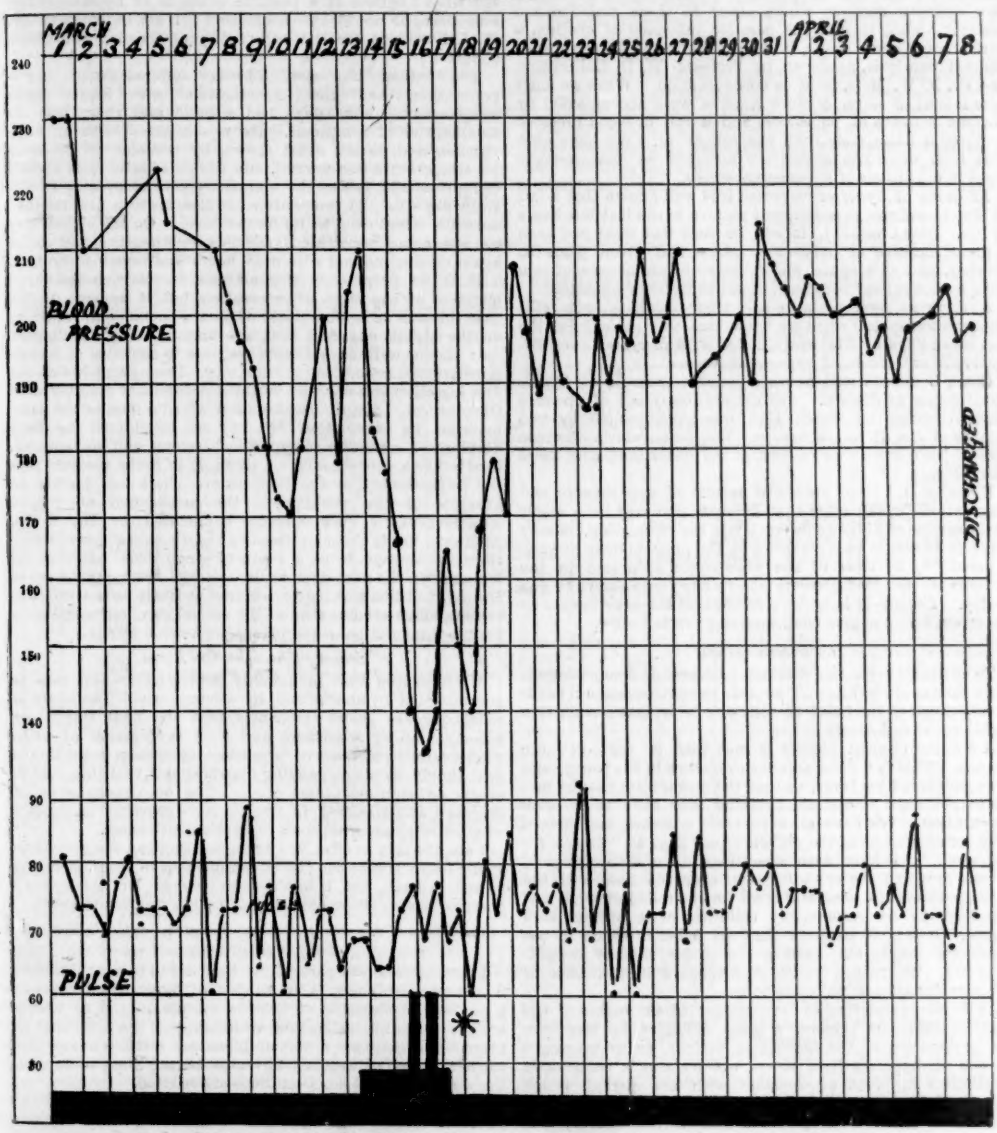
Œdema of the lung independent of infection or of the effect of irritating vapours as ether, is a common occurrence, met with in a large group of maladies, but in none so puzzling as in Bright's disease, especially in those cases in which œdema of other parts of the body is non-existent. It is possible that these manifestations are all the expressions of the existence of hypersensitiveness.

Disorders of the Nervous System, including Disturbance of the Circulatory, Muscular, and Digestive Systems.

Here, again, clinical difficulties are numerous in the extreme. Nothing can be more dramatic than the occurrence of idiopathic epilepsy. In the rehearsal of the symptoms of hypersensitiveness all must be impressed with the parallelism which many of them display with the phenomena of epilepsy. There are the initial terror and excitement of the animal, the development of actual fits, and the supervention of a sort of post-epileptic state—muscular paralysis, relaxation of sphincters, torpor, coma, and even death.

In the accompanying chart (Chart 1) there are shown observations of the blood pressure and pulse-rate of a man who had had several attacks of loss of consciousness. Fortunately, one occurred whilst in the hospital, so that close observation could be made.

CHART 3.



Blood pressure and pulse-rate chart. Two attacks o loss of consciousness represented at *.

The patient had had a fairly uniform high blood pressure and a perfectly normal pulse-rate up to June 1st, 1911. On and after July 12th his pressure remained uniformly still high, but at a lower level than on June 1st. Between these dates the blood pressure showed a general subsidence from a high to a less high pressure, but on July 7th, 8th, and

9th it fell to almost normal. The pulse-rate was still more remarkable in its change; for between June 1st and July 12th it rose to considerable heights, maximum 140, and was normal before and after this period.

About June 10th and July 5th he had two fits which were epileptic; he lost consciousness, had convulsions, voided stools and urine, bit his tongue, and showed post-epileptic conditions such as drowsiness. Both fits were ushered in by periods of mental instability, such as getting out of bed at odd times and walking about the wards without any reason. That he had renal disease and symptoms of tabo-paresis only helps to a small extent, because we do not know for certain how epileptic seizures which occur in these maladies are brought about, though the possible influence of choline, a derivative of nerve tissue, in the production of the seizures of general paralysis, as shown by Professor W. D. Halliburton and Dr. F. W. Mott, must be borne in mind. What we must note is that these remarkable seizures were accompanied by obvious increase of pulse-rate, and a fall of blood pressure occurred a little later than the second fit. We have seen that both these phenomena are accepted as characteristic signs in conditions of hypersensitiveness.

In cases of hypersensitiveness it is well known that a fall of blood pressure is a frequent picture in the last few hours of life. (See Chart 2.) It will be seen that there had been a great increase of pulse-rate, which had given place to slowing, and this again was followed by an increase of rate until no doubt they become so small as to be uncountable.

Striking as such pictures are, their significance is still further accentuated when we know that this patient for the last seven days of life was afflicted with diarrhœa—another feature in experimental hypersensitiveness.

Chart 3 affords still another possible example of hypersensitiveness in disease. The extraordinary fall of pressure which occurred on March 16th was accompanied by two attacks of loss of consciousness. The pulse-rate in this case showed little or no change, and, as the chart indicates, there was recovery.

Elsewhere[2] I have published results of experiments and observations which show that hypertension may be a result of the escape of kidney substance into the circulation. I may leave it to you to pass a verdict on the plausibleness of such a possibility in view of the phenomena exhibited by the patients whose blood-pressure charts have been shown to you to-day. I think it is quite possible that the experiments on hypersensitiveness give confirmation to such a view.

Cutaneous System.

To entrench upon the difficult problems of dermatology is more than could be allowed on this present occasion: but it is very much to the point to ask why it is that certain skin rashes occur and recur.

A familiar clinical picture is met with in angio-neurotic œdema. This is a common enough picture in the young, and is accompanied by fever, so that the unwary are caught and incise the area of œdema, thinking they have to do with suppuration. We have all seen such mistakes, and indeed they constitute one of the pitfalls of our days as "dresser for the week." I have seen operations done for patches of œdema in which the orbital tissue, even the tissues of the groin and scrotum, were laid open for the relief of what was supposed to be respectively cellulitis or a strangulated hernia. Rarely it happens that the œdema occurs in the mouth and tongue and even in the glottis, thereby jeopardising life. The reason for the occurrence and recurrence of this manifestation is unknown to us.

Again the reason for the development of the rashes of the acute exanthemata presents a great difficulty, no less than the explanation of the incubation periods, or as we might say the pre-hypersensitive period, which shows a remarkable parallelism in point of duration with the period which elapses after an injection of protein before the symptoms of hypersensitiveness develop. We can further hardly but wonder at the parallelism between these rashes and those of scarlatiniform, morbilliform, and polymorphous rashes met with in the "serum disease."

It is also a familiar fact that in certain cases of diffuse dermatitis such as pityriasis rubra suppression of urine closes the scene. Quite remarkable is a case I have recently shown before the Clinical Section of the Royal Society of Medicine of recurrence of asthma in a girl who also suffered from nasal polypi. With each attack of asthma, and at no other time, she had diffuse erythema of the limbs and body; the asthma and the rash no longer occurred if the polypi were removed; with their recurrence both asthma and rash recurred. Possibly either the substance of the polypi or the organisms resident upon or in them have created influences akin to those of hypersensitiveness.

Temperature.

Though rises and falls of temperature are met with in attacks of hypersensitiveness, I would especially call your attention to the fall in the accompanying chart. You will see what I believe is a possible example of hypersensitiveness brought about by vaccination. I am indebted to Dr. M. J. Rowlands for the opportunity of showing the chart. (Chart 4.)

The patient was aged 23. He suffered from pleuro-pneumonia, and the expectoration was loaded with streptococci. Four days had elapsed and there was no amelioration of symptoms. He was injected with an anti-vaccine, and, as the chart shows, by the end of 24 hours his temperature was normal, and his pulse-rate, from always being over 100, fell to the eighties. On the evening of the sixth day—i.e., 24 hours after his temperature had reached normal—it had risen to its former level. On the eighth day he was again vaccinated, and his temperature and pulse again reached normal within 24 hours and remained normal.

It is no purpose of this address to enter on the vexed question of the value of vaccination, but it appears to me that this was an ordinary case of pleuro-pneumonia, resolving on the eighth day, and that the first fall after vaccination may just as well have been a response to agencies of hypersensitiveness as to those of immunity. The patient before the first injection was charged with the products of disintegrated streptococci. Simply because he received a dose of the same material by vaccination he may be considered to have developed a condition of hypersensitiveness, and his temperature fell as a consequence. I think it is quite possible that the improvement in the temperature chart was merely an example of the working of the mechanism of hypersensitiveness, a view already enunciated by Dr. F. W. Andrewes in his Croonian lectures[3] as a result of his observations on leucopenia as a result of vaccination. It was but temporary: the next dose again restored the temperature to normal, and this was permanent and as likely as not was due to the chance synchronism of the second vaccination with the period of involution of the pleuro-pneumonic attack.

Urinary System.—The Blood.

We have seen that in animals hypersensitiveness may be accompanied by anuria and by albuminuria. The study of renal diseases shows frequently that the final stages are accompanied by scantiness and even suppression of urine with a relative increase of albumin. In certain cases this is due simply to accompanying diarrhœa and vomiting, but in others no such symptoms occur. The occurrence even of diarrhœa and vomiting in uræmia also provokes an inquiry whether they are symptoms of hypersensitiveness.

I am not able to offer you examples showing the alteration of the leucocytes or the fall of complement in cases occurring at the bedside, but I would refer you to Dr. Andrewes's observations on leucopenia in vaccination mentioned above.

Correlation of the above Clinical Symptoms with Phenomena of Hypersensitiveness.

I now come to the part of my task which is most difficult. So comparatively new is the subject of hypersensitiveness as a possible explanation of bedside symptoms, and so scanty are the clinical investigations which support the idea, that at present it is little more than an ingenious surmise to say that the mechanism of hypersensitiveness has anything to do with the various clinical manifestations above cited.

Returning to the opening remarks of this address, it will be remembered that hypersensitiveness has been demonstrated experimentally by the introduction of proteins of animal (or vegetable) origin into the body of an animal, other than the animal from which such proteins were derived, by a route other than the alimentary tract. How could it be argued that symptoms occurring in man could ever be dependent upon such circumstances? In the case of bacterial proteins the task is easy, and already there are several papers calling attention to the possible explanations

[2] THE LANCET, 1906, vol. i., pp. 1295, 1375, 1455.

[3] THE LANCET, vol. i., 1911, p. 1737; vol. ii., pp. 8, 83, 153.

of the recrudescences, &c., of the temperature in pneumonia and typhoid fever, of the incubation periods of the acute exanthemata and the development of their respective rashes, by a reference to the theory of hypersensitiveness.

Is there any justification for thinking that clinical manifestations which are independent of infection could possibly be due to the same mechanism? Attention must be called to the well-known existence of sclerosis of certain organs such as the liver, kidney, and brain. The parenchyma of these organs has disappeared and been replaced by fibrous tissues; the dislocated tissues may readily reach the vascular system.

It is therefore possible that subjects who suffer from these disorders, in which sclerosis and loss of parenchyma are features, have been rendered hypersensitive to their own organs.

But the objection may be raised that so far as animal experiments have been detailed to you, none have been concerned with the production of hypersensitiveness of an animal to its own organs. Fortunately, however, such experiments have been made, and with positive results. On the high authority of Uhlenhuth, characteristic symptoms of hypersensitiveness are developed when an animal, the absorption of amniotic fluid; her serum develops changes as a result, and such changed conditions are communicated to the animal into which such serum is injected; it becomes "passively" hypersensitive, so that on injection of amniotic fluid the phenomena of hypersensitiveness are revealed.

Recurrent œdema of the lungs independent of an infection, even emphysema itself not dependent upon excessive muscular exercise, recurrent hemi- and monoplegia, which are entirely recovered from, and which can be traced to no known cause, the excitation and depression which are such marked features in insanity, pruritus, and the many unexplained skin manifestations such as urticaria, also may be due to hypersensitiveness. The proteins responsible for the production of these phenomena may be derived from the individual so afflicted.

This list of clinical manifestations may appear to you as an ambitious one. The dissatisfaction we all feel when asked to give an explanation of them, however, in terms of pathological principles which have been accepted in the past, must be the excuse for my offering to you explanations based upon newer theories. If the proof is meagre at present, yet the impetus given to clinical study is one which promises much for the future. For further information—indeed, for the sources of all the theoretical considerations put before you this evening—I would refer you to an address by Dr. W. D'Este Emery on Anaphylaxis,[4] and to two luminous and suggestive articles by Dr. Friedberger,[5] whose views I have described.[6] For further references I mention monographs by Pfeiffer,[7] Moro,[8] and Besredka and Biedl and Kraus.[9]

CHART 4.

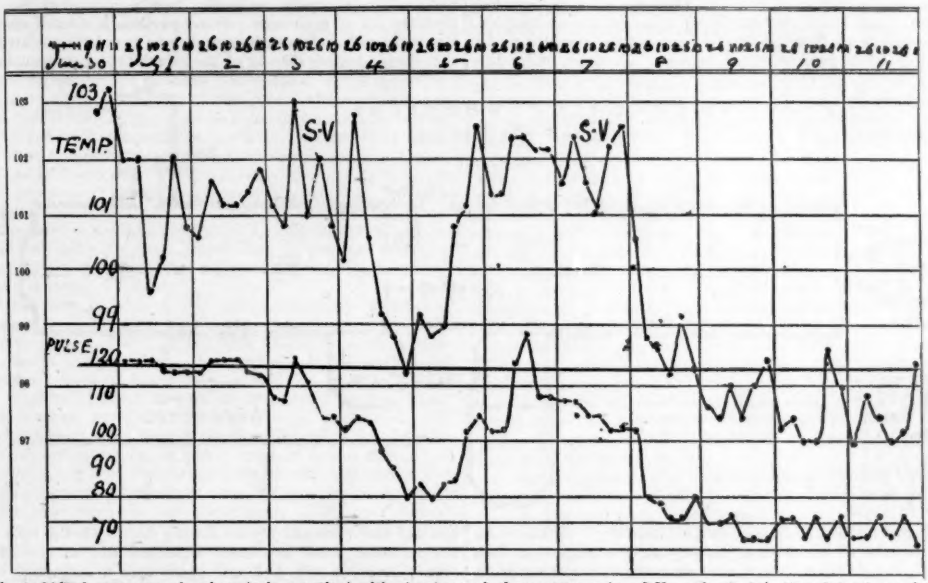


Chart of blood pressure and pulse-rate in a patient with streptococcal pleuro-pneumonia. S.V. marks the injection of strepto-vaccine.

guinea-pig, after the intravenous injection of an emulsion of one of its own lenses, is three weeks later injected with an emulsion of its remaining lens. V. Dungern and Dunbar, Gräfenberg and Thies have shown the same thing by the injection of an animal's own spermatozoa.

These experiments then give great support to the view that in clinical medicine certain unexplained phenomena may after all be due to the mechanism of hypersensitiveness. It may be that asthma, epileptic seizures (for example, those found to follow upon infantile hemiplegia), the coma met with in cirrhosis of the liver and granular kidney, "uræmic" palsies, "uræmic" fits, "uræmic" diarrhœa and vomiting, various forms of local or general œdema occurring independently of albuminuria and kidney disease or other ordinarily accepted cause, the convulsive seizures of general paralysis, eclamptic convulsions or the coma met with by your secretary occurring just after confinement in a woman otherwise apparently quite healthy, may all be examples of hypersensitiveness.

It has been found that if an animal is injected with the serum of an eclamptic woman, and two days later is injected with amniotic fluid, "hypersensitive" phenomena develop. They do not do so in a guinea-pig not previously injected with eclamptic serum. From which it may be concluded that possibly an eclamptic woman is really suffering from

[4] Brit. Med. Jour., Nov. 4th, 1911, p. 1178.
[5] Münchener Medizinische Wochenschrift, Nos. 50 and 51, 1910.
[6] The Practitioner, December, 1910.
[7] Das Problem der Eiweissanaphylaxie, by Dr. Hermann Pfeiffer, Jena, 1910.
[8] Experimentelle und klinische Ueberempfindlichkeit, by Dr. Ernest Moro, Wiesbaden, 1910.
[9] The articles by Besredka and by Biedl and Kraus in Kraus and Levaditi's Handbuch der Immunitätsforschung, Jena, 1911.

Harley-street, W.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—The annual meeting of this institution will be held at Devonshire House, Piccadilly, on March 29th at 3.30 P.M. The Duchess of Albany has signified her intention of being present, and Earl Curzon of Kedleston has promised to make an appeal on behalf of the financial needs of the hospital.

THE BED ISOLATION OF CASES OF INFECTIOUS DISEASE.

BY C. RUNDLE, M.D. LOND.,
MEDICAL SUPERINTENDENT, CITY HOSPITAL, FAZAKERLEY, LIVERPOOL;
AND
A. H. G. BURTON, M.D. LOND.,
SENIOR RESIDENT MEDICAL OFFICER, CITY HOSPITAL, FAZAKERLEY, LIVERPOOL.

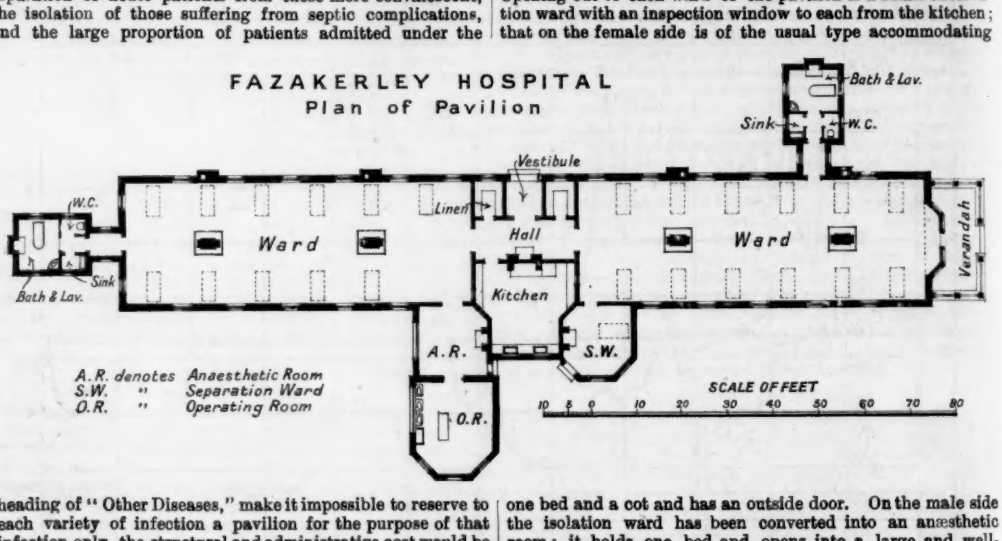
IT is the practice to admit to the Fazakerley City Hospital patients suffering from the infectious illnesses commonly admitted to hospitals of this character. In addition to scarlet fever, diphtheria, and typhoid fever, there are during the greater part of the year under treatment at one time cases of erysipelas, puerperal fever, measles, chicken-pox, and infantile diarrhœa. To these may be added a variety of conditions admitted under a mistaken diagnosis, the nature of which will be familiar to those who have been responsible for the administration of large fever hospitals. In addition, 60 beds are set aside for the sanatorium treatment of consumptives. There is in all accommodation for 520 patients.

The requirements of modern methods of nursing, the separation of acute patients from those more convalescent, the isolation of those suffering from septic complications, and the large proportion of patients admitted under the heading of "Other Diseases," make it impossible to reserve to each variety of infection a pavilion for the purpose of that infection only, the structural and administrative cost would be obviously prohibitive. As an alternative to a strict limitation of the number of diseases admitted for treatment, with a corresponding restriction in the utility of the hospital, the following systems have been practised in various institutions whereby patients suffering from different infections may be brought administratively under the control of a limited number of nurses: (1) Treatment in separate rooms opening on to a common duty room—i.e., the system of isolation nests; (2) the glass cubicle system; and (3) the system of bed isolation whereby patients suffering from different infectious diseases are treated in the same ward under the same nurses, measures of strict asepsis alone being relied upon for the prevention of cross infection. The results obtained from a somewhat extensive trial of this last system made during the years 1910 and 1911 at the City Hospital, Fazakerley, form the subject of this paper.

The necessary administrative and economic disadvantages attached to the system of isolation by separate wards need not be noticed here; structural changes in many directions have been made with a view of minimising these difficulties, and the glass cubicle system may be regarded as the most recent attempt to provide a physical obstacle to the transmission of infections at a reasonable administrative cost. This method, although of great value, has limitations (apart from initial cost of construction), which have been readily admitted by those who have had experience of its use, and the object of the investigation made at this hospital has been to show whether nursing on lines of strict surgical asepsis might safely take the place of the structural methods hitherto adopted.

The principles of the bed isolation of cases of infectious disease have been observed for a number of years under the system of "barrier" isolation, but the practice of this system has been reserved in the majority of instances for the separation of different types of the same disease. By this method, for example, septic types of scarlet fever have been effectively isolated from types of a less severe character, and children have been separated from their fellows during the incubation period of a secondary infectious disease to which they have been exposed. No investigations have hitherto been made on a scale sufficiently extensive to be of value to suggest how far these same principles might be safely utilised in the separation of patients suffering from a variety of different specific infectious diseases.

The ward pavilion used for the purpose of this work has male and female wards separated by an entrance hall, kitchen, pantry, and linen cupboard (see figure). The female ward has a roofed verandah at the south end, the sanitary offices being placed at the side, while the male ward has its lavatory accommodation at the extreme north end. The beds are arranged on the ordinary plan with a window between each bed. The air-space in cubic feet per patient is 2100. Opening out of each ward of the pavilion is a small observation ward with an inspection window to each from the kitchen; that on the female side is of the usual type accommodating one bed and a cot and has an outside door. On the male side the isolation ward has been converted into an anæsthetic room; it holds one bed and opens into a large and well-appointed operating theatre. The remaining appointments of the ward require no further description, being of the usual type found in isolation hospitals.



The diseases which are admitted to the ward are as follows: (1) All cases of puerperal fever and erysipelas, and most cases of pertussis, rubella, and varicella; (2) all cases notified as suffering from an infectious disease, but found on admission to have no infectious condition; (3) cases in which the diagnosis is doubtful and observation is necessary, such as "query" scarlet fever or diphtheria cases; (4) cases from other wards in the hospital requiring operative treatment in which the after-treatment may be prolonged; (5) convalescent cases of diphtheria or measles when the wards receiving these patients are pressed by a sudden rise in the incidence of the disease; (6) cases of epidemic diarrhœa when these are few in number. The method of isolating these various diseases in one ward has been, in brief, the observation of strict cleanliness after examining or attending to a patient with a primary infectious disease or suspected to be suffering from such.

The hospital has had the advantage of possessing a highly trained sister in charge of the ward pavilion with special surgical and fever experience, who has supervised the wards since their inception. Each ward, male and female, is in charge, under the sister, of a general hospital-trained nurse with some fever experience; one probationer is also allocated to each ward. The night staff consists of two nurses, one of

whom has frequently had three years' general training. The wards are consequently well staffed both as regards the number and the qualifications of the nurses in charge. Each case of puerperal fever is placed on admission in the side ward off the operating theatre until it is decided what operative measures, if any, may be required. As long as active treatment, such as douching, is required the nurse in charge is not allowed to assist in the dressing of any case of erysipelas or cellulitis. Coats are worn by the doctor and nurse when attending to the case, and rubber gloves if douching or dressing is needed. When the operation has been performed and another case has been admitted requiring operative treatment, the first case is transferred to the main ward. Thus during the same week there were six cases of puerperal fever in the main ward and one case in the side ward.

The cases of erysipelas and cellulitis are treated with ordinary cleanliness only, no special isolation measures being adopted. The same remark applies to patients having no infectious disorder but some such condition as lobar pneumonia or a non-infective skin disease.

With cases of varicella, pertussis, and doubtful or genuine cases of scarlet fever or diphtheria, more rigid measures are adopted. Two long coats kept for each case are worn, one by the doctor and the other by the nurse, whilst examining or attending to the patient. Drinking-vessels, knife, fork, spoon, and spitting-mug are boiled after use, and separate sanitary utensils, bowl and brush for washing, and bath blankets are reserved for the use of each of these patients. No interchange of toys or books is permitted. After removing the coat worn in attending to the case the doctor or nurse washes the hands before proceeding to another patient. For this purpose a table with three bowls is kept half-way down each ward; additional bowls are placed on the locker of the patient concerned if isolation measures are likely to be prolonged or if the case is requiring frequent attention.

Temperatures are taken in the axilla and the thermometers washed in lysol after use. In the case of patients suffering from varicella or enteric fever a separate thermometer is kept for each patient.

If the case is one of the prime infections mentioned this routine is adopted until the patient is considered non-infectious, in cases of doubtful diagnosis until a negative opinion is arrived at. The patient is allowed to get up when all signs of acute disease likely to prove infectious have subsided. From now on he is allowed to mix freely with the other convalescent patients until discharged, provided that he is not a scarlet fever or diphtheria patient with rhinorrhœa or otorrhœa, in which cases a longer stay in bed is adopted, in the former case until the rhinorrhœa has ceased. Special precautions are, of course, adopted in dealing with nose or ear discharges. The convalescent transfers from other wards are similarly allowed freely to mix with the convalescent patients of the ward.

The total number of cases admitted to the ward during the years 1910 and 1911 was 668. Of this number, as will be seen in the following table, 27 showed no actual disease; a large proportion of these 27 cases were babies admitted with their mothers, the latter suffering from puerperal fever.

Table giving Varieties of Cases Admitted during the Years 1910 and 1911.

Infectious Diseases.

Disease.	Total cases.	Convalescent transfers.
Scarlet fever	69	16
Diphtheria	40	15
Measles	37	29
Rubella	12	5
Varicella	38	12
Pertussis	9	—
Scarlet fever and pertussis	2	1
Measles and pertussis	2	1
Varicella and paratyphoid fever	1	—
Diphtheria and scarlet fever	1	1
Typhoid fever	10	—
Puerperal fever	35	—
Erysipelas	215	—
Vincent's angina	1	1
Anthrax	1	—
Total	473	81

Other Diseases.

Disease.	Total cases.	Disease.	Total cases.
Phthisis	3	Conjunctivitis	1
Tuberculosis of other organs	4	Syphilis	2
Lobar pneumonia	4	Acute rheumatism	2
Empyema	3	Anæmia	2
Bronchitis, broncho-pneumonia	18	Carcinoma	2
Laryngitis	1	Chorea	1
Tonsillitis	50	Rickets	2
Retro-pharyngeal abscess	1	Icterus neonatorum	1
Ulcerative stomatitis	1	Marasmus, malnutrition	8
Alveolar abscess	1	Cellulitis, septic wounds	8
Gastro-enteritis, epidemic diarrhœa	33	Cutaneous abscesses, mastitis	3
Dyspepsia, constipation	2	Skin diseases	13
Nephritis	1	Total	168
Myocarditis	1		

No disease.—27.

During the two years under review the number of patients who developed an infectious disease whilst under treatment was two. One instance occurred in a girl, aged 7 years, who had been admitted suffering from rubella, but notified as a case of scarlet fever. After 14 days' stay in bed she was allowed up, but 13 days later was again confined to bed with a typical attack of scarlet fever. The other secondary case was that of a girl, aged 10 years, admitted with a mild attack of faucial diphtheria. After 28 days in bed she was allowed up, and in six days' time developed scarlet fever.

In the list of cases given attention may be drawn to the large number of non-infectious patients, many of whom—as, e.g., those suffering from epidemic diarrhœa—were young children. None of these contracted any infectious disease while in the ward.

The above figures represent the result of two years' observation, and although not large they certainly justify a continuation of this work and support the opinions arrived at by Martin, of the Institut Pasteur, Crookshank,[1] and others.

Caiger[2] in a recent paper defines three methods by which infection may be transmitted from one patient to another, both occupying beds in a hospital ward: 1. By "direct projection of infective particles from the patient's mouth or nose, the recipient being in immediate proximity." 2. By "mediate infection"—i.e., the indirect conveyance of recent infective material from the patient to the recipient by means of some article common to both. Under this heading may be included spread of infection "by fomites." 3. By "aerial infection"—i.e., infection at a distance (such as that intervening between neighbouring beds) by means of minute droplets of saliva, mucus, &c.

A consideration of the results obtained by bed isolation compared with those of cubicle isolation should be of definite value in deciding upon the comparative importance of these three modes of infection. Facilities for the spread of infection by method (3)—i.e., aerial infection—are obviously greater under the system of bed isolation than that of cubicle isolation; in fact, a total breakdown of the system of bed isolation might be expected if "aerial infection" were of common occurrence. In the light, however, of the very satisfactory results obtained by this latter system, as compared with those of cubicle isolation,[3] it may be fairly argued that the danger of spread of infection in a hospital ward by means of "aerial infection" is to be disregarded for practical purposes. It would appear that the practice of rigorous asepsis on surgical lines has a value equal to, or greater than, that of any of the accepted methods of separation by artificial barrier.

If the suggestion be accepted that "aerial infection" is a factor of limited importance, a suggestion receiving support from the results of this investigation, it may be questioned whether glass partitions do not involve a false security in regard to the nursing staff, rather than that protection to the patient which is claimed for them. In short, it would appear that in this matter of individual or "unit" isolation, the quality of nursing obtainable is the sole factor of success or failure. In probably no other branch of her professional work is a nurse called upon to display so large a capacity for detail and administrative control as in the bed isolation of cases of infectious disease.

[1] THE LANCET, Feb. 19th, 1910, p. 477.
[2] Public Health, June, 1911.
[3] Ibid.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

TWO CASES OF "ACUTE ABDOMEN."

BY J. J. W. EVANS, F.R.C.S. ENG.,
MEDICAL OFFICER IN CHARGE, WESTMINSTER HOSPITAL.

THE following two cases are of interest because they show the extreme difficulty of diagnosis in atypical abdominal conditions. A perusal of them will demonstrate their extreme similarity in all clinical aspects and their great divergence in pathological detail.

CASE 1.—A single woman, aged 45, was admitted to the Westminster Hospital in December, 1911. In the past she had had two attacks of "gastric ulcer" in 1906 and 1910, being laid up in the first instance five and in the second three months; in both instances she suffered from severe abdominal pain and persistent vomiting. She also had pleuro-pneumonia in 1907. There was a history of dysmenorrhœa as a young woman, but she had not suffered of late years. Two days before admission she was suddenly attacked with acute abdominal pain and vomiting which persisted up to the time of admission. When first seen the patient had a temperature of 99·4° F. and a pulse rate of 136; she had been given morphia before the journey. The abdomen was a little distended and only moved slightly on respiration; there were general tenderness, most marked on the left side, and absolutely no rigidity or any sign of fluid in the abdominal cavity. The pelvis was normal. The liver dulness was diminished. The heart and lungs appeared normal. A diagnosis of perforated gastric ulcer was made and laparotomy was performed. An incision was made in the middle line above the umbilicus but nothing abnormal was found in the upper part of the abdomen, which was then further explored below with a like result. The wounds were closed and the patient put back to bed, where her pulse-rate immediately fell to 120. With the exception of two days' pain and vomiting the patient made an uneventful recovery.

CASE 2.—A married woman, aged 34, with one child and no miscarriages, was admitted in December, 1911. Her past history showed that she had been laid up for a fortnight with "gastric ulcer" in 1903. Three days before admission she developed pain in the abdomen, most marked on the left side; there was no vomiting and the bowels were confined. When admitted the patient had a temperature of 100·8° F. and a pulse-rate of 132; morphia had been administered before the journey to hospital. The abdomen was not distended and moved on respiration; it was very tender all over, but there was no resistance or any sign of free fluid. The pelvis seemed normal. The liver dulness was present. The heart and lungs were examined and presented no abnormality. Laparotomy was performed, the incision being made in the middle line below the umbilicus. The abdominal cavity was found to contain a large quantity of pus distributed all over it; there was also an abscess cavity in the pelvis which had burst and contained a gangrenous appendix. The appendix was removed and the abdomen washed out and drained. Pus from the abdominal cavity showed on cultivation the streptococcus pyogenes and the bacillus coli communis. The patient made a slow but good recovery. The circumstances of both cases were such that no leucocyte count was possible.

The first case shows very well the impossibility of making a certain diagnosis in some abdominal conditions, which are fortunately of rare occurrence. The anomalous nature of the physical signs in the second case may have been accounted for by the recent administration of morphia. But however one may regard such cases one is forced to admit the advisability of prompt treatment.

I wish to express my thanks to the staff of the hospital for permission to publish these reports.

A CASE OF SURGICAL EMPHYSEMA DURING LABOUR.

BY MARION STOCKS, M.B., B.S. LOND.,
ASSISTANT MEDICAL OFFICER, SHEFFIELD UNION HOSPITAL.

THE patient was a strong healthy girl, aged 20 years, a primipara, who had been in the Sheffield Union Hospital during the last two months of pregnancy.

Labour began on Feb. 14th at 1.30 A.M. when it was found that the vertex was presenting. Dilatation was complete and the membranes ruptured at 10.30 A.M.; the presenting part, however, remained high up in the pelvis. The uterine contractions were good and were supplemented by the strong voluntary efforts the patient herself made during the second stage. She had also frequent attacks of vomiting.

When seen at 2.5 P.M. her general condition was satisfactory, and the head was then beginning to make pressure on the perineum. Very shortly afterwards, however, the maternity sister reported that the patient's face was swelling, that this increased and was accompanied by cyanosis during the pains. The crackling sensation of subcutaneous emphysema was found present over the swollen area, extending over the neck and right side of the face; the right palpebral fissure was reduced to a slit. Forceps were applied and the patient was delivered of a living child.

At 10 P.M. the emphysema was found present over an area including both sides of the neck, both sides of the face up to the orbital ridges, the whole of the right side of the thorax limited by the costal margin below, the spine behind, and the sternum in front; the right upper arm to the extent of a third, and the left shoulder. Apart from some pain in the chest and at the back of the neck, of which complaint was made, the patient appeared to be little the worse. She made a good recovery, the whole of the swelling having disappeared at the end of eight days.

Sheffield.

A CASE OF MENINGITIS IN WHICH THE BACILLUS COLI COMMUNIS WAS OBTAINED FROM THE CEREBRO-SPINAL FLUID.

BY G. H. PEARSON, M.R.C.S. ENG., L.R.C.P. LOND.

A GIRL, 3 months old, was admitted to the East London Hospital for Children, Shadwell, E., on Jan. 25th, 1912, with obvious signs of meningitis. Lumbar puncture was performed under strict aseptic precautions and a turbid fluid, not under tension, was withdrawn. On examination four hours later the fluid showed numerous bacilli, extra- and intra-cellular, and a large number of polynuclear neutrophiles. A white count the same day as the puncture was done showed the number to be 16,000 per cubic millimetre.

The child died six days after admission, and at the post-mortem examination the diagnosis of septic meningitis was proved to be correct. The brain was entirely covered—more especially the anterior two-thirds—with purulent and offensive pus. There was no localisation of pus at any point. The ventricles were dilated and full of pus, which also surrounded the cord, especially between the cervical and lumbar enlargements. The left middle ear was full of pus, while the right was healthy and dry. No thrombosed vein or caries of bone was found. During life no symptoms of middle-ear mischief had been present. The bacillus, which was remarkably plentiful in the cerebro-spinal fluid, had all the morphological and cultural characteristics typical of the colon bacillus.

Cases of meningitis due to the colon bacillus are of great rarity, and there is little doubt that in some of the recorded cases the bacillus was found either as a result of a contamination in performing the lumbar puncture or as an ante-mortem phenomenon. In this case an obvious focus of entry for the bacillus was found post mortem, and the fluid withdrawn during life was examined shortly after removal from the body and found swarming with bacilli.

In the cases recorded by D'Allocco,[1] Nobecourt and Du Pasquer,[2] and Concetti,[3] where the bacillus was obtained from cerebro-spinal fluid by lumbar puncture, meningitis was

[1] Riforma Medica, Palermo, 1900, vol. xvi., part 1, pp. 435–437.
[2] Bulletin de la Société de Pédiatrie de Paris, 1902, vol. iv., pp. 371–377.
[3] Congrès de Médecine de Paris, 1900, Section des Maladies de l'Enfance.

accompanied by very severe gastro-intestinal disturbances. Recovery is reported in most of the cases. In this case, however, these symptoms only appeared at the close, and there seems no doubt that the primary focus was the middle ear. Forbes[4] also mentions a case of spina bifida from which he obtained the colon bacillus from the cerebro-spinal fluid. The child recovered.

I am very much indebted to Dr. A. M. Gossage, under whose care the child was, for permission to publish the case, and also to Dr. P. N. Panton, of the London Hospital, for his kindness in confirming the cultural results.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Fibrinous Discharge from the Nose.—Ruptured Intestine.—Exhibition of Cases.

A MEETING of this section was held on March 8th, Mr. W. G. SPENCER, Vice-President, being in the chair.

Dr. A. M. GOSSAGE read a paper entitled, "A Family with Fibrinous Discharge from the Nose." He pointed out that fibrinous rhinitis was not very uncommon in children. According to Lambert Lack it was commonest in early childhood and was ushered in by slight malaise which was not sufficient to cause the child to lie up and only lasted for a day or two. There was a nasal discharge associated with fibrinous or membranous exudation on the nasal mucous membrane which persisted for six to eight weeks and then cleared up, leaving no sequelæ. In nearly all the cases bacilli indistinguishable from the Klebs-Löffler bacillus could be found, but although the disease was infectious, it did not seem to give rise to true clinical diphtheria. True diphtheria, of course, invaded the nostrils not infrequently and gave rise to a severe illness with formation of membrane in the nose. A further type of membranous formation in the nose had been described by Baumgarten. A strong baby girl had been noticed from birth to have crusts about the nose. With a probe and wool a long thin tube, like parchment, could be obtained from the nostrils, which took three to four days to re-form. At the age of 3 years a bad smell had been noticed, and after 4 years typical ozæna had developed. When the child was 2 months old the nose had been washed out with iodoglycerine, and after this no more tubes were formed, but occasionally there were slight crusts; later even these disappeared. The mother had suffered from ozæna, but there was no other abnormality in the family; a twin sister was quite normal. Baumgarten further stated that he had met with two other similar cases: tube formation in early infancy and development of ozæna about the fifth year of life. He considered that ozæna is frequently inherited chiefly from mother to daughter, and is much commoner in women. Dr. Gossage had recently come across a remarkable family, several members of which had a persistent fibrinous discharge from the nose. The condition was first noticed at birth and apparently persisted throughout life. It caused no impairment of health, the bronchitis from which the first member he had seen was suffering having been probably an accidental concomitant. There was only very slight discomfort, though there was a tendency to the development of a bad smell if the nostrils were not kept clear. In no case, however, was there any sign of ozæna. Specimens of the discharge, which usually took about 12 hours to re-form, were obtained from the father and two of the children, and in all cases were found to be a more or less complete fibrinous cast of the nostrils. Dr. Ross, pathologist to the East London Hospital for Children, had kindly examined the discharge and reported as follows: Film preparations showed polymorphonuclear cells embedded in a network of fibrinous matter. The organisms present were bacilli, diplococci, and short diplo-bacilli; no evidence of bacillus diphtheriæ or bacillus xerosis. Attempts to embed in paraffin and cut sections failed owing to the friability of the material. One of the boys had been taken into the hospital for 24 hours, but unfortunately had no discharge during that time. The nostrils had been examined on several occasions, and nothing abnormal could be seen, except once, when some fibrinous exudation was found over one lower turbinate bone. At least four generations had been affected, and males and females were attacked equally. Of the children of affected persons with normal mates, roughly half were affected and half normal. This suggested that the inheritance afforded another example of Mendelism in human beings, and that the abnormal condition was dominant to the normal. Unfortunately, there was no record of any offspring from the normal members of the family, so that it was impossible to say whether all their children were normal, as would be expected. It was a matter of great interest to find a fibrinous exudation on a mucous membrane resulting from a congenital abnormality, and not from some infective inflammatory process. He had not been able to find any record of a similar condition in medical literature.

Mr. WILFRED TROTTER communicated a note on a case of Ruptured Intestine, with especial reference to the mode of production of the lesion. The case was one which appeared to throw some light upon a subject about which there had been some controversy—viz., the mechanics of the production of traumatic rupture of the intestine. The patient, a youth, aged 18, was admitted to the University College Hospital during the evening of August 30th, 1910. Some hours earlier, in the course of his work as a navvy, he was caught between the buffers of two ballast wagons and severely crushed. The wagons being a good deal lower than ordinary railway trucks the buffers caught him over the lower half of the abdomen. He was held by them for a few moments under severe pressure. Operation was undertaken somewhat less than 24 hours after the accident. A median incision was made below the umbilicus. The intestinal coils in the lower half of the abdomen were found to be inflamed and somewhat matted together. Amongst them was turbid fluid mixed with a considerable quantity of fæces. Separation of the coils revealed a segment of ileum lying to the left of the spine against the posterior abdominal wall and showing an opening half an inch across which was discharging semi-solid fæces of a green colour. Examination of the damaged loop showed at once that suture was not possible. Enterectomy was therefore done and the bowel united end to end. The features of the injury could be seen well in the specimen shown, which preserved most of the appearances visible at the operation, and in a drawing. For a distance of about 2 inches the peritoneum of the bowel had been torn through and had shrunk back. Through this opening the tube of mucous membrane had protruded after being torn away from the outer coats. In the most prominent part of the prolapsed mucous membrane was a round opening of the size of a sixpence. The appearances seemed to show that the lesion was produced by a true bursting of the intestine. Traumatic rupture of the intestine had been attributed, and no doubt was due, to the action of one or other of three different mechanisms—viz., crushing, laceration, and bursting. There was no doubt that one or other of the two former caused the lesion of the bowel in many cases. Upon the third, however, a good deal of doubt had been thrown, and some authorities were inclined to question whether it was ever a cause of rupture. Experiments had shown that when the abdomen was compressed the pressure within the bowel, as might have been expected, was not increased above the general intra-abdominal pressure, and that therefore there was no tendency for bursting of the bowel to occur. When, however, a loop of bowel was not supported by the general intra-abdominal pressure—when, that is to say, it lay at a hernial opening or within a hernial sac—rupture was likely to occur if the abdomen was violently compressed. It had been shown comparatively recently that the influence of a hernia in predisposing to the occurrence of rupture was an important one. While admitting this, he was not prepared to agree that bursting could occur only in presence of a hernia. None such was discoverable in his case. It seemed, however, that bursting might be brought about in another way. If a loop of bowel were caught between the compressing force and the spine in such a way that both limbs of the loop were occluded, the contents of the latter might be put under such pressure that bursting occurred. Some such mechanism as that appeared

[4] Quarterly Journal of Medicine, Oxford, 1908, vol. i., p. 109.

to be the explanation of the state of affairs found in his case.

Dr. JAMES GALLOWAY showed a case of Progressive Muscular Dystrophy. The patient, a man, aged 31, presented the characteristic features of the better known types of this disease. The case was noteworthy on account of the want of evidence of heredity, the late onset of symptoms, the possible influence of severe muscular exertion, the arrest or retardation of the disease for some years, and the advance of symptoms when, for a transient illness, he stopped exercise and remained in bed for a fortnight.

Dr. HERBERT FRENCH showed a case of Paralysis of the Right Vocal Cord, Obstruction to the Superior Vena Cava, and Partial Obliteration of the Right Radial Pulse from Mediastinal Fibrosis, probably Syphilitic. The patient began to suffer from fulness in the head and from congestion in his upper extremities, with consequent difficulty in doing his work. The symptoms rapidly increased, and for upwards of a year he was unable to do any work, all the veins of his forehead, face, neck, and arms standing out like cords on the least exertion, and his facies presenting the suffused and livid appearance of considerable venous obstruction. During the past year these congestive symptoms had diminished sufficiently to allow him to do light work, probably as the result of the development of a deep collateral circulation. There was no marked degree of fulness of his superficial thoracic veins when he did not work or when the weather was cool, but on working, or when the weather was hot, many dilated superficial veins stood out upon his chest wall, his arms, neck, and forehead. The upper part of his right chest and shoulder were filled out as though by a tumour, especially at the root of the neck above the right clavicle. The patient had a bovine cough, and there was paralysis of the right vocal cord. The right radial pulse was hardly perceptible, whilst the left was strong. X ray examination showed no bulging of the aorta, but a dense shadow in the superior mediastinum, and particularly upon the right side, corresponding with the fulness that could be felt there. Malignant neoplasms would seem to be excluded by the facts that there had been improvement during the last year, and that the duration had already been two years without any loss of weight. Benign neoplasm within the thorax was a possibility; but the patient when a young man had syphilis and gave a positive Wassermann reaction when he first came under observation, so that it was thought that the lesion was mediastinal fibrosis from the healing of former gummata within the thorax, leading to stenosis of the superior vena cava, stenosis of the innominate artery or right subclavian artery, paralysis of the right recurrent laryngeal nerve, and interference with the upper lobe of the right lung. There was apparently no interference with the nerves of the brachial plexus.

Dr. FRENCH also showed a man, aged 61, who had Two Aneurysms of the Thoracic Aorta.

The following cases were also shown:—

Mr. ALBERT CARLESS: A case of Sarcoma of the Ilium treated by Coley's Fluid.

Mr. W. H. BATTLE: A case of Mikulicz's Disease.

Mr. TROTTER: Two cases illustrating Rupture of the Extensor Tendon of the Terminal Phalanx of the Finger.

Dr. E. B. WAGGETT and Mr. EDWARD D. DAVIS: A case of Hyperostosis Cranii.

SECTION OF ANÆSTHETICS, WITH SECTIONS OF SURGERY AND MEDICINE.

Exophthalmic Goitre.

THE adjourned debate on this subject took place on March 5th, Dr. W. J. MCCARDIE, the President of the Section of Anæsthetics, being in the chair.

The debate was resumed by Mr. A. E. BARKER. He said that though he had operated upon a large number of cases of thyroid tumour of all kinds, and in various positions, he had only dealt with a limited number of cases of Graves's disease. Though he had listened, in Berlin five or six years ago, to Professor Kocher's analysis of his work in this sphere, and the discussion which followed it, and had studied the literature since, he did not feel that a strong case had yet been made out for the operative treatment of Graves's disease, and the able contributions to the present discussion had not materially modified his views. Indeed, the ingenious way in which Dr. Hale White put the matter at the first of these meetings[1] had greatly strengthened the feeling he originally had. The intrinsic difficulties of the operation were a deterrent, and the effect of thyroidism on the nervous system was such that the liability to shock was much increased. It seemed that the mortality from Graves's disease when it was treated medically was about double that of ordinary people of the same age not suffering from exophthalmic goitre. The mortality from operations for the condition was variously given as from 4 to 10 per cent. The latter figure was Mr. Wilfred Trotter's,[2] and was about what one would expect from the operation. For most of his thyroid operations he had relied upon local analgesia, and had been well satisfied with it, though his experience comprised but few cases of extreme degree. This method should always be combined with morphia or some other efficient general sedative. The infiltration should be done by a surgeon who was familiar with the ground which he would have to cover, and the amount of force which would be necessary for the dissection. In conclusion, he spoke highly of the great help given to the surgeon by the expert anæsthetist.

Mr. CHARTERS J. SYMONDS regarded this discussion as forming an epoch in the operative surgery and general treatment of exophthalmic goitre. Dr. Dunhill's paper[3] seemed to convey a too great feeling of safety with regard to the operation itself, and he (Mr. Symonds) insisted upon the need of differentiating between patients who were nervous and had a goitre and patients with true hypothyroidism. Finer distinctions were necessary, based upon a closer examination of other organs of the body and of the blood. There was room for a more frequent consultation between physician and surgeon in selecting cases, and operating upon only the suitable ones. If cases could be seen earlier, he had hopes that operation for Graves's disease would become as safe as that of ordinary thyroidectomy. He feared that, in a general way, there was at present too strong an inclination to operate, and the blame for that must not be given wholly to the surgeon, for he was sometimes asked to open an abdomen because the physician was not ready to rest upon the obvious symptoms. There were some operations which, in order to insure safety, needed to have been frequently performed by the particular surgeon, who should possess the experience gained from operating in general and not alone in one particular region. This skill and knowledge would enable him to know how to act when his first course failed. He still looked upon operations for exophthalmic goitre as very serious, and much remained to be learned before success could be commanded. In all the cases of goitre, except two, which he had operated upon chloroform was the anæsthetic, and he had not had anxiety about them.

Mr. DONALD J. ARMOUR gave his experience in connexion with 26 cases, all but two of whom were females. He had had one operative death, and that patient should not have been operated upon, as she was in the last extremity of the disease. It was the only one for which local anæsthesia was given. She died a few minutes after the operation had been completed. He did ligature in the first four cases, but he had now given that up in favour of partial thyroidectomy, removing one lobe and the isthmus and, if advisable, part of the second lobe. All rough handling and squeezing of the gland should be avoided. In one case crushing of the gland sent the pulse up to 180 per minute. For two days following the operation the patient should have large quantities of saline fluid. He only occasionally employed drainage. The cases which had been traced were either cured or very much better.

Mr. WALTER EDMUNDS said that in Dr. Dunhill's fourth class he placed cases of adenoma of the thyroid with some tremor, some staring of the eyes, and an easily excited heart. These should be regarded as undoubted cases of Graves's disease, as they have both its symptoms and its pathology; two cases were cited in which an adenoma was accompanied with all the symptoms including exophthalmos, and in which the symptoms completely disappeared on the removal of the tumour, and in which, under the microscope, the tumour showed the characteristic appearances. Besides this, ordinary cases of Graves's disease (Dr. Dunhill's Class 1) sometimes contain an adenoma showing the usual changes; a case in which such an adenoma, together with other portions of the goitre, was removed was referred to; the symptoms

[1] THE LANCET, Feb. 24th, 1912, p. 504.
[2] THE LANCET, March 9th, 1912, p. 641.
[3] THE LANCET, Feb. 17th, 1912, p. 422.

promptly disappeared. A series of 13 cases of Graves's disease treated with milk from thyroidless goats[4] and other ways, but without operation, was referred to. Ten of the cases became much better or completely cured, one remained about the same, and two died. It seems probable that some of the ten cases might have been operated on, and if they had been that they would have been better or well sooner. The case that was about the same might have been operated on, and if all had gone well would have been now better or well; but the most important question is about the two who died. They were both very severe cases, and it is very doubtful if there ever was a stage in either case in which they could or should have been operated on; in one there was unilateral exophthalmos nine years before the goitre appeared, and also an attack of unconsciousness followed by convulsions of one arm one year before the goitre; the goitre grew with great rapidity and a rapid pulse and œdema of feet soon followed. The other case was also very severe, and a bad prognosis was given early; a sister had previously died from the same disease. Neither of these cases could be regarded as simply hypersecretion of the thyroid to be treated by removing part of the gland, and hoping that the remainder would atrophy. The observation that after the removal of one lobe and part of the other the eye on the side of the only partly removed lobe is often more prominent is very important, as it seems to show that the disease is not due merely to an over-secretion circulating in the blood.

Dr. H. J. SCHARLIEB considered that the safety of chloroform and ether made it undesirable to use local analgesia for these cases, on account of their great nervousness and the liability to psychic shock. If a general anæsthetic were given he considered it absolutely necessary to give previously from 1/100th to 1/50th grain of atropine hypodermically—i.e., half an hour before the operation. The patient should assume a position of comfort and have time to get breath after being placed on the operating table. One should begin with a mixture of chloroform and ether, or chloroform and absolute alcohol. One could then change to open ether or chloroform, administered by any dosimetric method. The anæsthesia should be full for the first incision, being considerably lightened later, and deepened again for the final suturing.

Dr. G. A. H. BARTON did not consider that local analgesia had any advantages over general anæsthesia. He had notes of 33 consecutive cases, and they confirmed his view that these cases could be safely and satisfactorily managed under general anæsthesia. Having separated out his 33 cases into Dr. Dunhill's categories, he said that some blueness was noticed in only 5 and a tendency to respiratory failure in 1. Hypodermic injections preliminary to operation were not given in the first 14 cases, except 1/100th of a grain of atropine five minutes before the anæsthetic. In 8 cases there were minor difficulties from cough, and in 2 considerable hæmorrhage. In one case of obstructed airway he administered oxygen throughout. If scopolamine and morphia were given, followed by open ether, with or without oxygen, much less general anæsthetic was required.

Mr. RUPERT FARRANT pointed out that there was a definite cycle from thyroid excess to thyroid insufficiency. At the commencement of this circle hypothyroidism would be so slight as to be overlooked. It was impossible to say to what height hypothyroidism might rise before the stage of insufficiency commenced. His examination of a thousand lunatics showed that they had a cycle of thyroid changes, which ran parallel with the mental symptoms. In conclusion, he expressed the view that if hyperthyroidism were recognised from one to three years sooner than is usually the case Graves's disease would largely cease to exist.

Mr. HERBERT J. PATERSON contended that, no matter what anæsthetic were used, its administration in Graves's disease was always attended with considerable risk. Chloroform, even when given by a supposed dosimetric method, was very hazardous. If any general anæsthetic were given it should be open ether, preceded by morphia and atropine. He had seen six deaths directly after thyroid operations; probably there were more such immediate deaths from operations for this condition than for any other. Therefore it would be disastrous for anyone unskilled in anæsthetics to lightly give an anæsthetic. He did not agree with deepening the anæsthesia for the final suturing, as that prevented the oozing points being seized and tied before the wound was sewn up. He pointed out that the mortality from operations for exophthalmic goitre at the clinique of the Mayo brothers at Rochester, U.S.A., had been reduced to 3·9 per cent. The practice of the Mayos was to use X rays to the tumour for some weeks before operation, and during that time the patient was kept at absolute rest, and belladonna was administered. He (Mr. Paterson) always tried to have the patient in hospital for three or four weeks prior to operating, and carried out the preliminaries just mentioned, the rest being absolute. Having paid a high tribute to the surgical skill of Mr. James Berry in this operation, he expressed the opinion that if exophthalmos had been marked it never entirely disappeared.

Mr. H. M. PAGE related the experience, from an anæsthesia point of view, of 25 cases, many of which were those referred to by Mr. Donald Armour. In only one of the cases was there any real increase of pulsation at the end of the operation.

Mr. H. BETHAM ROBINSON said he had hoped to hear reference made to intravenous anæsthesia, and spoke of the apparent success of the intravenous administration of hedonal in a case of exophthalmic goitre, as shown by the comfort of the patient and the absence of engorgement at the surface of the cavity, as well as the fact that he did not have to ligature any vessel, and there was no trouble afterwards.

Mrs. DICKINSON BERRY commented upon the absence of light in the discussion as to how far general anæsthesia was an additional risk in these cases, even when taken well. She spoke of two cases, operated upon by different surgeons, chloroform being used in one case and ether in the other, in which the patients died within a comparatively few hours following the operation. She also spoke of the small amount of discomfort complained of by the patients after local analgesia.

The PRESIDENT spoke of the association of the condition of status lymphaticus with exophthalmic goitre in its relation to anæsthesia. It was generally agreed that the thymus coöperated in causing exophthalmic goitre, and there was reason to suppose that the size of the former gland might be some indication as to the severity of the lymphatism present. He had seen several of the operations done under local analgesia, and the strain of the injection, if it were thoroughly done, was sometimes described by the patient as being equal to that of the operation itself. There was no general verdict on the question of the anæsthetic in these cases among those whose operative experience was the widest. An objection to local analgesia seemed to be its prevention of venous oozing. In the worst cases of exophthalmic goitre even the slight degree of toxic effect produced by a general anæsthetic should be avoided.

Mr. JAMES BERRY, who was responsible for the debate being arranged, wound up the discussion in a general way. He said it was unnecessary for him to enter at full length upon his views and methods, as he did that about two years ago in the debate at the Hunterian Society. He had operated on the thyroid gland in over 670 cases, and of those only 11 were genuine Graves's disease, though he had often been asked to perform the operation in that disease in the acute stage, but had declined, on account of the risks being so great. Much yet remained to be done before operating on Graves's disease could be considered satisfactory. The idea that Graves's disease had only to be operated upon to be cured, though prevalent in some quarters, was to be deprecated, as it was a grave mistake. Owing to the kindness of registrars of various large London hospitals he had collected records of 97 cases in the last few years, all well-marked and typical examples of the disease. The results had been much the same at the various hospitals, except that at the Middlesex Hospital there were 10 cases reported without a death. The deaths in the 97 cases numbered 16, and of these 12 occurred within 48 hours of the operation, and most of them within 24 hours. In only 10 was local analgesia employed. In 55 the anæsthetic was chloroform, and in most of the others ether. Possibly the poor results were largely due to the operation not having been done early enough. On the other hand, under medical treatment the prognosis in early cases was by no means wholly bad. Many patients recovered completely under medical treatment. There was much uncertainty about prognosis in these cases. But, as Mr. Will[illegible]

[4] THE LANCET, Jan. 25th, 1908, p. 227; April 10th, 1909, p. 1040; April 23rd, 1910, p. 1135.

Trotter so well said, not only the mortality from the procedure should be taken into account, but the wretched and miserable condition of the patient also must have its weight. Operations for true Graves's disease must always be regarded as serious and even dangerous. He strongly urged that false cases, which were not Graves's disease at all, should be ruled out of statistics on the subject. In the operation he supported those who advocated gentle manipulation, scrupulous asepsis, and exact hæmostasis. There should also be considerable judgment as to how much of the gland to remove. In most cases he did hemi-thyroidectomy from choice. In very bad cases he inclined to ligature of one or both superior thyroid arteries at first. But death might follow even this simple operation. The administration of large quantities of fluid was, perhaps, the most important point in the after-treatment. He considered that chloroform, however skilfully administered, added materially to the risks of the operation. Those who operated for Graves's disease should not publish simply gross statistics, but lists of cases in which details were carefully given, including the condition of the patient before operation, and a considerable time afterwards. That would constitute the best guide for future operative policy.

SECTION OF BALNEOLOGY AND CLIMATOLOGY.

Spa Treatment of Neuritis.

A MEETING of this section was held on March 6th at 15, Cavendish-square, W., Mr. G. H. THOMPSON (Buxton), the President, being in the chair.

Mr. WILLIAM ARMSTRONG (Buxton) read a paper on the Spa Treatment of Neuritis. He emphasised the paramount necessity of definite diagnosis between neuritis, neuralgia, and fibrositis, as the successful prescription of spa treatment depended almost entirely on accuracy in this particular. He briefly indicated the points by which this could be done, and also the structural changes found in the nerve tissues in cases of neuritis. The various forms and stages were noted and the following general lines of treatment laid down: 1. The building up of general nerve health. 2. Rest—general, local, and physiological. 3. Avoidance of all violent and irritating methods of treatment. 4. Elimination of toxic products and correction of faulty metabolism. 5. The removal of nerve inflammation. 6. The improvement of nerve nutrition and the repair of nerve mischief The special spa methods recommended were: In acute neuritis applications of superheated air general or local, the Greville method being the safest and most effective. Hot packs of radio-active earths with or without ionisation. Cocaine ionisation with low strength currents, followed by light applications of the electric cautery over the tender nerve points, especially at the spinal nerve exits. Oxygen baths, which have a peculiarly soothing and tonic influence on the general nervous system. The drinking of the various natural waters to eliminate toxins. Massage and strong irritating electrical current are contra-indicated in the acute stage of the disease. In subacute and chronic cases the eliminating effect by kidneys, skin, and lungs of the radio-active waters such as Bath and Buxton, and through the bowels and liver of those of Harrogate, Llandrindod, and Strathpeffer is of notable value. The radio-active waters are also very helpful in the form of inhalation and baths, their efficacy being much increased by the addition of oxygen. Warm mineral baths with hot gentle *under water* douching are useful, preceded by the local application of dry superheated air or of very hot vaporised mineral water. Ionisation with cocaine, radio-active earth, or sodii salicyl., with or without the electric cautery application, is most valuable—as are Moor baths; and in the more chronic cases gentle application of electricity by means of the Schnee bath, wave static, or high-frequency currents. Hot massage baths on the Buxton, Aix, or Vichy systems may at this stage be employed with care and gentleness. The Plombières douche is indicated if the urine shows excess of aromatic sulphates. The researches of Lazarus, Saubermann, and others were mentioned in regard to the remarkable action of radium emanations in greatly increasing the output of uric acid by the kidneys, urea and butyric acid by the skin, and carbon dioxide by the lungs, while at the same time building up the vital forces, the use of these emanations being especially indicated in the class of case under discussion. Considerable stress was laid on the necessity in cases of obstinate neuritis of being on the look-out for pressure causes, especially from malignant growths and aneurysms.

The PRESIDENT said that it was necessary to differentiate neuritis from cases of painful but less serious forms of neuralgia, otherwise treatment suitable to the latter would produce results profoundly disappointing. The great essential in severe and early cases was rest, and it was often difficult to get the patient to concur, as he looked upon his visit to a spa as a sure and certain escape from such restraint. Mr. Armstrong had given the most approved and successful forms of treatment. Similar treatment of like conditions sometimes gave dissimilar results. In severe cases Mr. Thompson had good results with a 2 per cent. salicylate ionisation. In cases where blistering was used, he had found a dilute solution of formalin very effective in keeping open the part.

Mr. W. J. MIDELTON (Bournemouth) said he had employed the blister followed by savin ointment, and also a form of acupuncture, followed by the application of a mixture of croton oil, cantharides, acetic acid, and almond oil, in the treatment of neuritis, and quoted cases in which he had obtained marked success by one or other of these methods. He doubted if other methods were superior in any way to the above, and as the result of long experience he had succeeded in devising details by which practically all severe pain and discomfort were eliminated.

Mr. E. SOLLY (Harrogate) said that in his experience many cases of so-called neuritis were primarily due to the condition now usually spoken of as "fibrositis," in which the symptoms were more manifest in the perineural tissue than in the fibrous tissues generally. In these cases treatment should be directed to the injured nerve tissue, and should consist of soothing treatment by rest and local application of heat; whereas in fibrositis affecting the coarser forms of fibrous tissue, forcible massage and stimulating forms of electric treatment were necessary.

Dr. LÉON BLANC (Aix-les-Bains) referred to the distinction between neurasthenic and neuritic pain. He said that as long ago as 1846 Baron D'Espin had pointed out that massage must not be used to the affected part. He advocated the use of the under-water douche after vapour baths, and considered that the radio-active mineral baths and packs were of the greatest value.

Dr. C. W. BUCKLEY (Buxton) laid stress on the necessity of distinguishing between parenchymatous neuritis and neuritis associated with fibrositis, which was very common. He pointed out that American observers had shown that many cases of so-called brachial neuritis were really affections of the subacromial bursa and not of the brachial nerves. He divided the treatment into three stages: in the first stage rest, with methods of inducing hyperæmia; in the second, hyperæmia again, with ionisation and mineral-water treatment; in the third, massage, ionisation with iodine, and hot douching.

Dr. WILLIAM EWART inquired whether the radio-active oxygen baths had led to any favourable results in the clinical behaviour of patients as regards their temperature and general metabolism. He also wished to know whether any good effect had been obtained from a mild systematic eliminant treatment in cases of a plethoric tendency.

MEDICAL SOCIETY OF LONDON.

X Rays in the Diagnosis of Hydronephrosis.—The X Ray Examination of the Urinary Tract.

A MEETING of this society was held on March 11th, Dr. J. MITCHELL BRUCE, the President, being in the chair.

Mr. J. W. THOMSON WALKER read a paper entitled "The Value of the X Rays in the Diagnosis of Hydronephrosis." The means of diagnosis of hydronephrosis and their practical value were shortly stated. Hydronephrosis presented two clinical stages, the first in which symptoms alone were present, and the second in which a swelling was found in the loin. The functional value of the kidney in the second stage was greatly impaired, and after relief of the obstruction the kidney did not return to its normal state. In the first stage there were two groups of cases. In one there was an obvious cause of hydronephrosis present (ureteric calculus, moveable kidney), in the other no such cause could be demonstrated (hydronephrosis due to valves,

stenosis, aberrant vessels). The symptoms of commencing dilatation in these groups were discussed and it was stated that they were variable and of little diagnostic value. Dilatation of the kidney was seldom diagnosed before a palpable tumour appeared in the loin. Exploratory operation was too serious a method for adoption in all cases. The X ray diagnosis consists in: (*a*) finding an increase in the shadow thrown by the kidney. In early dilatation special measurements must be made in a fixed position in order to recognise the enlargement. (*b*) Pyelography, which consisted in filling the pelvis of the kidney with an innocuous fluid opaque to the X rays (collargol) and obtaining a radiogram. The dilated pelvis was less sensitive to distension than the normal pelvis. Commencing dilatation was shown by clubbing and elongation of the calyces, and the pelvis became globular. The angle of union of the renal pelvis and ureter was shown by pyelography, and kinking could be demonstrated. The ureter, pelvis, and upper renal calyx should be in a straight or slightly curved line. The angle formed by the ureter, pelvis, and lower calyx should be wide. The position of the obstruction was shown by a stone shadow, a kink at the junction of the ureter and pelvis, or the shape of the collargol shadow. Illustrations were given of the value of pyelography in the diagnosis of commencing dilatation of the kidney in ureteric calculus, of persistent dilatation of the kidney after relief of obstruction, of the presence or absence of dilatation in moveable kidney and after nephropexy, of kinking of the uretero-pelvic junction, and in the demonstration of an actively contracting ureter in hydronephrosis due to moveable kidney, and in the diagnosis of hydronephrosis due to aberrant renal vessels.

Dr. W. IRONSIDE BRUCE read a paper entitled "The X Ray Examination of the Urinary Tract," which will later be published in THE LANCET.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

The Relation of Local Authorities to the National Insurance Act.

A MEETING of this society was held on March 8th, Professor A. BOSTOCK HILL, the President, occupying the chair.

Dr. A. K. CHALMERS opened a discussion upon the Relation of Local Authorities to the National Insurance Act. He stated that the sanitary legislation of the last century was concerned primarily with the removal of barriers against healthy living, which in ignorance of their effect had been allowed to grow up around large centres of population, but that during the past ten years inquiries had revealed how large was the sum of inefficiency in individuals which might be hidden beneath a too rigid insistence on the value of general averages, even though they pointed to a reducing prevalence of fatal disease and to an extended duration of life at its most productive ages. The National Insurance Act might be regarded as providing for a large part of the adult community a scrutiny similar in its character to that which was yielding hopeful results in the movement for the reduction of infant mortality and for the detection of disease among children of school ages. When considering the provisions of the Act which enabled county or county borough councils to share with the Treasury the payment of any deficit estimated as likely to arise in connexion with the administration of medical benefits, Dr. Chalmers expressed the opinion that in ordinary circumstances a deficit was not likely to arise. He spoke approvingly of the use of the word tuberculosis rather than phthisis in the Act if only for the reason that should the extension of sanatorium benefit to the families of insured persons become general preventive measures could be taken against consumption at a time when the lungs, if not entirely free from the disease, were at least free from phthisis in the sense that no open tuberculous lesions were present. He suggested that the extension of sanatorium benefits to dependents in reality simplified the problem for the local authorities who had not hitherto displayed any eagerness to provide for consumptives facilities for hospital treatment, mainly for the reason that they were not convinced that as an administrative weapon sanatorium treatment applied solely to the treatment of consumption could stand alone or as the dominant factor in the effort to reduce the prevalence of tuberculosis. Dr. Chalmers pointed out many difficulties surrounding the successful administration of Section 63 of the Act, which provides that a sanitary authority in whose area there may be shown to be excessive sickness due to the neglect of the authority shall pay out of its funds any extra expenditure alleged to have been incurred by the Insurance Committee as a consequence of the excess.

Mr. F. E. FREMANTLE deprecated the exclusion of the county councils and the sanitary authorities from direct participation in the administration of the Act. He considered that the scheme should be worked through the sanitary authorities with the county councils as intermediate authorities.

Dr. G. F. MCCLEARY attached great importance to the preventive side of the Act and could conceive circumstances in which Section 63 could be put in force with advantage, such, for example, as in the typhoid epidemic at Lincoln.

Dr. A. H. BYGOTT considered that the Act constituted a first line of defence against disease and that a second line could be provided by making more use of the Public Health Act of 1875 to provide institutional treatment.

Dr. E. W. HOPE pointed out that every Act of Parliament required for its administration knowledge and experience, both of which, however, could only be obtained in the case of the Insurance Act after it had been in force. He considered that sanatorium treatment must be regarded in the broadest manner, and that it was absurd to limit it to those cases which would come out as a success.

Dr. R. A. LYSTER said that those who were to control the Act were the insured, and that it was idle to talk to them of general measures of prevention. They would expect to have individual treatment. He hoped medical officers of health would not urge preventive measures too freely, for it could not be expected that these would produce as good results in the next few years as they had done in the past.

Mr. E. H. T. NASH emphasised the importance of dealing with pre-tubercular cases which were being gathered in by the school medical officer.

Mr. HERBERT JONES considered that Section 63 would have far-reaching effects if only as a lever to arouse into activity rural district councils. The section was justified by the large number of reports of medical inspectors of the Local Government Board in which sanitary authorities had been shown to be neglecting their duties.

THE PRESIDENT, while agreeing that it was important to get hold of the pre-tubercular cases, feared that there would be many difficulties in doing so in rural districts, for local sanitary authorities had not yet had awakened in them the sanitary conscience.

LIVERPOOL MEDICAL INSTITUTION.

Calculi in the Ureter.—Diabetes Mellitus.

A MEETING of this society was held on March 7th, Mr. ROBERT JONES, the President, being in the chair.

Mr. W. THELWALL THOMAS read a short paper on the Diagnosis and Treatment of Calculi in the Ureter. He gave a tabulated analysis of 17 cases on which he had operated, and said the symptoms which were most marked were pain, hæmaturia, and pyuria. In all his cases pain had been present. In most cases there was aching pain often shooting into the testicle, sometimes unilateral, but not always felt on the side on which a calculus was found by the X rays. In 11 cases the pain had been intermittent and colicky. Hæmaturia was present in 10 of the cases, in some of these in very small amounts. Pyuria was present in about half the cases; in some along with hæmaturia. In 3 cases there had been neither hæmaturia nor pyuria. The most reliable indication was the presence of well-marked shadows on the radiogram in the line of the ureter, but even this was not absolute in the lower inch or so of the duct. In such cases the cystoscope helped. The ureteral bougie had been used, but it might pass beyond a stone and so lead to wrong conclusions. Mr. Thomas had not found any treatment of use that aimed at dissolving the calculi; large quantities of fluid might by washing the stone through the ureter lead to its expulsion. The stones had all been analysed by Professor B. Moore, and found to consist of insoluble salts of lime. Mr. Thomas had operated by the perineal and by the vaginal routes, but preferred and recommended the iliac route for all cases. With the patient in the

Trendelenburg position, an incision was made in the direction of the fibres of the external oblique over McBurney's point, the muscle was split and retracted, the internal oblique was also split and the peritoneum opened. It was possible by this method to reach the whole course of the ureter and even to excise the kidney. Dujardin's forceps for the bile passages had been found useful for the extraction of impacted stones, but hardly strong enough in their grip for some cases. A good head light was essential for this work. The ureter was opened on the anterior surface and the stones removed; the ureter was sutured with fine catgut, a drain was inserted, and the abdominal wall sutured in layers. Mr. Thomas showed lantern slides of the radiograms and of the steps in the operation.—In the discussion which followed Mr. F. T. PAUL said that division of the muscles had never given any trouble if the incision were well to the outside of the rectus muscle. He had found laryngeal forceps useful. He showed forceps which he had devised with a long flexible shaft and alligator jaws.—Mr. C. T. HOLLAND said it was impossible in some cases to be absolutely certain that shadows shown by radiograph were due to stone in the ureter. Calcareous glands were common in that region; also phleboliths were found at most all ages. The vermiform appendix and calcareous deposit in the fibrous tissues of the sacro-iliac joints might also give misleading shadows. He emphasised the need for a radiographic examination on the day of the operation as the stones moved and might disappear.

Dr. O. T. WILLIAMS and Dr. P. MILDRED POWELL gave the salient points of a long and elaborate paper on the Treatment of Diabetes Mellitus. Allusion was made to the work of Dr. Mathew Dobson, a physician of Liverpool, who, in 1775, was the first to demonstrate sugar by crystallising it out and obtaining alcohol by its fermentation. Dr. Williams briefly reviewed our knowledge of carbohydrate metabolism and the influence of ductless glands and the nervous system in relation to glycogenolysis. Charts were shown compiled from daily observations made for months by Dr. Powell on patients in the Royal Infirmary. In the study of the cases treated by diastase there was no obvious action on nitrogen or on carbohydrate metabolism, or on the organic acids. Throughout the whole series of cases there were small changes in reactivity of the urine to different indicators. Whether the diastase were given in liquid or solid form or in capsules insoluble in the stomach, the changes were not due to the ferment. The charts showed that the most successful cases had been treated by limited amounts of carbohydrate diet varying with the needs and idiosyncrasies of the patient; in some cases the urine had become sugar-free, body weight was gained and acidity diminished under a dietary where oatmeal was given up to 8 ounces per day. The recent discoveries of the effects of the removal of the cuticle of rice in producing beri-beri and the effect on the disease of giving the pericarp of the cereal suggested that there may be some part of the potato, of oats, and of rice which has a specific action on metabolism, and which, if it can be isolated from the cereals or from the preparations of diastase, may prove to have specific action in the treatment of this disease.—A discussion followed, in which Dr. C. J. MACALISTER, Dr. W. B. WARRINGTON, Dr. T. R. BRADSHAW, and Mr. T. H. BICKERTON took part. The last speaker mentioned that Dr. Mathew Dobson was not only a distinguished discoverer and physician, but was the first president of the Liverpool Medical Society.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Sloughing Bladder from Pressure of a Pelvic Myoma.—Cancer of Stomach simulating Ovarian Cyst.—Summer Diarrhœa in Infants.

A MEETING of this section was held on Feb. 16th, Mr. A. J. HORNE, the President, being in the chair.

Dr. H. JELLETT showed a post-mortem specimen of Sloughing Bladder due to Urethral Compression by Pelvic Myoma, consisting of the bladder, the uterus enlarged by a myoma, and the vagina. The patient, aged 40, suffered from acute retention of urine for a fortnight previous to admission to the Rotunda. A medical man had passed a catheter, and ordered this to be done twice daily. On admission the physical signs were: A hard tumour incorporated with the uterus, filling the pouch of Douglas, in front of which was the bladder reaching almost to the umbilicus. The urine was exceedingly dark and foul-smelling, contained blood, was alkaline; specific gravity, 1020. The bladder was washed out with a solution of permanganate of potash, and a permanent rubber catheter left in. The uterus was pushed out of the pelvis with difficulty. The patient gradually sank, and died the following day from septicæmia due to general poisoning from the bladder. Post-mortem examination showed great thickening of the bladder, and the mucous membrane had practically disappeared. The point of importance was that patients suffering from retention of urine should be submitted to pelvic examination.—Mr. H. B. GOULDING said that in a case recently observed the patient suddenly developed symptoms of being unable to pass urine. He recommended operation at once, and she was now quite well.—Sir W. J. SMYLY said that he had seen this case at the Rotunda in the absence of the Master, and it seemed to him exactly like a case of retroverted pregnant uterus. He referred to similar cases, but retention was not complete and there was no sloughing of the bladder.—Dr. A. P. BARRY and the PRESIDENT also discussed the case.—Dr. JELLETT, replying, said that death occurred in some cases from nephritis, but in this case apparently from general poisoning. Patients with myomata should be operated on while in good health without waiting for serious symptoms.

Dr. JELLETT showed a specimen of Cancer of the Stomach simulating Ovarian Cyst. The patient, aged 64, had six children, the last pregnancy being in 1888. She was admitted on Jan. 16th complaining of pain in the abdomen, which for six months had been getting larger. The uterus was small and atrophied, the abdomen containing a semi-cystic tumour about the size of a seven months pregnancy; there were some nodules in the right iliac fossa; no gastric symptoms were present. On opening the abdomen a swelling of the size of a football—tense and covered with large veins—was discovered. It was attached to the liver, and below it lay the transverse colon and small intestines. There was a firm adhesion between the abdominal wall and the tumour on the left side. A couple of hard nodular masses were to be felt to the right of the tumour in the region of the right kidney. She died about a week after the operation from heart failure. At the necropsy it was found that the tumour was a malignant growth originating in the stomach.—Dr. T. P. C. KIRKPATRICK said that in view of the fact that the patient had no gastric symptoms he might mention that this year he had heard of four such cases, in one of which practically the whole stomach was involved, yet the patient presented no gastric symptoms. It was well to remember that malignant disease of the stomach might reach an advanced stage without any signs of gastric trouble.—Dr. JELLETT, in replying, said that the tumour filled the whole abdomen, the liver being displaced and rotated.

Dr. J. SPENCER SHEILL read a paper on the Recent Epidemic of So-called Summer Diarrhœa amongst Infants, which was discussed by Dr. E. H. TWEEDY, Dr. KIRKPATRICK, Mr. J. S. ASHE, Dr. B. A. H. SOLOMONS, Dr. JELLETT, Mr. G. C. SNEYD, Dr. BARRY, Dr. ELLA WEBB, and the PRESIDENT.

SECTION OF PATHOLOGY.

Exhibition of Specimens.

A MEETING of this section was held on Feb. 23rd, Professor A. H. WHITE, the President, being in the chair.

Sir JOHN MOORE showed the Heart of a woman, aged 34, who was admitted to Meath Hospital on Jan. 12th last. Notes of the case showed that the area of cardiac dulness was much increased and the apex beat could not be made out. The pulse was small and scarcely collapsing in character. Systolic murmurs were heard both in the aortic area and at the apex of the heart, and at times a diastolic murmur under the sternum. An occasional doubling of the first sound and an inconstant presystolic murmur heard to the right of the left mamma further suggested mitral stenosis or some form of mitral obstruction. The average pulse-rate was 100 in the morning and 104 in the evening; respirations 31 in the morning and 34 in the evening. The diagnosis was combined aortic and mitral valve disease of rheumatic

origin. Death took place rather suddenly. On post-mortem examination the aorta was healthy. When opened and emptied of clots the heart weighed 29 oz.; there was a milk spot on the anterior surface of the right ventricle; the pericardium otherwise was normal. The walls of the left ventricle were greatly hypertrophied, and its cavity was dilated. Early fatty degeneration was shown by well-marked "thrush-breast" mottling of the musculi papillares. The right valves were normal. On the left side extensive acute vegetative endocarditis was found implanted on old fibrous disease of the mitral and aortic cusps, most exuberant on the anterior and right posterior segments of the aortic valve, and small crops sprouting from the orifices of the coronary arteries. The acute process had also spread from the mitral flaps to the inner surface of the dilated auricle. There must have been aortic insufficiency of old standing, and probably a little mitral regurgitation. The mitral orifice was not materially stretched.

Dr. WILLIAM BOXWELL read the clinical notes, and exhibited the heart and lungs, of a child of 8 years who was obviously in a serious condition when admitted suffering from pain and dyspnœa and showing the anxious expression and livid lips of pericardial effusion. He had never suffered from rheumatism or scarlet fever. He had been a particularly healthy child, well-grown and vigorous—facts of interest in view of the post-mortem findings. His present illness had been of a week's duration. Physical examination disclosed a marked increase of cardiac dulness, a loud shuffling friction sound, with a sharp thrill and a blowing systolic murmur. A pleural effusion was noted. Exploration with the hollow needle was without result. The child was *in extremis* and died next morning. At the necropsy a large sero-fibrinous effusion was found laterally and behind the heart. The mitral and aortic valves showed acute simple endocarditis. The right auricle was markedly dilated. There was a large patent foramen ovale with no attempt at valve formation. The tricuspid orifice was a mere hole, without any anterior cusp. To the right of this was a second orifice of the size of a child's thimble guarded by diminutive valve cusps and papillary muscles. Dr. Boxwell said he was more impressed than ever with the futility of the hollow needle for either exploration or treatment, and strongly advocated free incision and exploration with the finger of all cases of pericardial effusion requiring surgical interference.

In the absence of Dr. GEORGE PEACOCKE, Professor ALFRED SCOTT showed a specimen of Cancer of the Pancreas with Pancreatic Cyst from a woman, aged 39, but looking much older, who was admitted to Adelaide Hospital on Dec. 3rd, 1911. She had never been sick until about two months previously, when she began to suffer with flatulence, loss of appetite, and constipation. She noticed a lump in her abdomen on the left side, which, though not tender, caused a dull aching pain. She had not vomited. On Dec. 1st she noticed that she was jaundiced. She did not notice much loss in weight. On admission she was deeply jaundiced. The urine contained bile and the stools were light in colour. Her thoracic organs appeared normal. Examination revealed a large tumour, occupying chiefly the left side of the abdomen, coming from under the costal margin on the left side, extending below the umbilicus, its inner margin being felt slightly to the right of the middle line. The edge of the liver could be made out separate from the tumour, which was dull on percussion, did not move on respiration, and was not tender on palpation. Until a few days before death vomiting was only occasional, and was never a marked symptom. The patient died on Jan. 26th. The specimen showed the surface of the liver covered with numerous nodules, having the dimpled and typical appearance of secondary growths. The tumour contained a vast quantity of fluid and a number of cells in a state of fatty degeneration. The fluid had a trivial action on starch and protein, but there was nothing remarkable in it. The cyst had cavities and there was moderately dense connective tissue. Lower down was a very mottled greenish-white mass, which sections showed to be a small round-celled cancer.

Professor SCOTT also exhibited for Dr. Peacocke a specimen of Miliary Cancer of the Peritoneum in a woman, aged 47, admitted to the Adelaide Hospital on Feb. 8th, who had enjoyed excellent health up to two months previously. On admission she was very ill—marked dyspnœa, cyanosis, and an almost imperceptible pulse. Fifteen ounces of bloody serum were withdrawn from the chest, with slight relief, but she died on Feb. 10th. Post mortem the right and left side of the pleura, as well as the abdomen, were filled with fluid, the lung collapsed, and all tissues very much matted. The mesentery was thick and covered with little growths, which had the appearance of either tubercle or cancer. The liver was adherent to the diaphragm, but there were some little white growths on the surface. All over the peritoneum there were miliary growths. Sections of the liver showed it to be carcinoma. The starting point could not be traced as there appeared to be no focus. No explanation could be found for the onset of the disease.—The cases were discussed by Dr. J. A. MATSON, Dr. R. J. ROWLETTE, Mr. W. I. DE C. WHEELER, Dr. W. D. O'KELLY, the PRESIDENT, and Mr. K. E. L. G. GUNN.—Professor SCOTT, replying, said with regard to the first specimen the urine contained nothing except bile. Cammidge's reaction was not done. With regard to the second case the ovaries appeared to be normal.

Mr. WHEELER showed a specimen of Abdominal Aneurysm from a man on whom he operated some months ago. The patient, after the introduction of 150 inches of wire and the performance of a gastro-enterostomy, developed intestinal obstruction. The abdomen was again opened, and a loop of jejunum was found compressed between the tumour formed by the aneurysm and the stomach and abdominal wall. The obstruction was relieved, but the patient died in a week from rupture of the aneurysm at a point remote from where the wire was introduced. The wisp of wire (Colt's) was found situated between the layers of laminated clot (formed before operation), and had not expanded to any extent. Mr. Wheeler considered that the lesson to be learned from this information was not to introduce the wire until there was a free flow of blood through the cannula in order to be certain that the wire would enter the lumen of the aneurysm and not be pushed between layers of clot. If necessary two or three punctures should be made before pushing the wire home. The two cases operated upon previously by Mr. Wheeler were alive and well—17 and 8 months respectively after operation. Mr. Wheeler also showed four specimens of Stomach Cancer removed by operation.—Dr. ADRIAN STOKES and Mr. GUNN discussed the cases, and Mr. WHEELER, in reply, said that the stretching of the peritoneum in pancreatic cyst and hydronephrosis was not accompanied by pain, but where there was marked pulsation it appeared to him that the stretching plus the pulsation might cause it. The great pain was not of necessity due to the erosion of the vertebræ.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 1st, Mr. H. Littlewood, the President, being in the chair.—Dr. J. B. Hellier read a paper on Vesicular Mole—Benign and Malignant. This was illustrated by lantern slides and by an excellent series of microscopic sections arranged by Dr. M. J. Stewart, and by microphotographs kindly lent by Dr. J. H. Teacher of Glasgow. Dr. Hellier dealt chiefly with the clinical features of the conditions under consideration. He mentioned two cases where excessive vomiting in pregnancy had been due to vesicular mole. He dwelt on the great difficulty sometimes experienced in the early diagnosis of the malignant from the benign form, showing that the proliferation of the trophoblastic layer in the two forms respectively was one of degree rather than kind. He spoke also of the occasional retrogression and healing of chorio-epithelioma.—Dr. Stewart read a short paper on the Pathological Questions most under Discussion at Present in Regard to Chorio-epithelioma.—Mr. Walter Thompson described a case on which he had recently operated successfully for Chorio-epithelioma following vesicular mole.—Dr. T. Cuurton showed a child, aged 3 years, with Obliteration of the Hepatic Veins which produced rapidly recurring Ascites. This was finally treated by incision, and recovery occurred with dilatation of the superficial abdominal veins.—Mr. J. F. Dobson showed a Gall-stone removed from the Ileum, where it had produced acute intestinal obstruction, and also Gall-bladders which had been in fistulous communication with (*a*) the colon and (*b*) the duodenum.—Mr. A. L. Whitehead showed a case of Tuberculous Iritis.—Mr. Michael A. Teale showed two sisters showing Congenital Dislocation of the Lens of Each Eye.—

Other cases and specimens were shown by Mr. H. Secker Walker, Mr. Thompson, Mr. E. W. Bain, Dr. R. A. Veale, Mr. R. Lawford Knaggs, Dr. W. H. Maxwell Telling, Dr. G. W. Watson, Mr. H. Littlewood, and Dr. L. A. Rowden.

At the previous meeting of the society, on Feb. 16th, Dr. Myer Coplans read a paper entitled "Some Gleanings from Leeds Markets," which was by inadvertence not referred to in the report published in THE LANCET. He said: With the advent of the Insurance Act a new condition arises whereby all care for the sick workers is placed directly in the keeping of the medical practitioners of this country, and there follows the natural corollary that there will arise in preventive medicine a new movement for the extension of its domains and over-lordship, one having for its principal exponents and votaries all who are like to be harassed and unjustly penalised for every infraction of the canons of sanitation, be the offender the individual or the community. The new Health Committees in their anxiety for the maintenance of public health are like to regard the behaviour of the sanitary committees of the local authorities with the proverbial care, attention, and watchfulness of the cat towards a mouse. Many problems await solution, one of them that of a pure food-supply; and inasmuch as a considerable proportion of the food consumed by the workers of Leeds passes through the Leeds markets some gleanings of the immediate condition of affairs may not be untimely. For food totally unfit for human consumption the Legislature has already provided drastic measures. Still, there remains a wide and extensive borderland to which the terms tainted, degraded, and unwholesome are the only just qualifications. The sale of such food is free and unrestrained. Not one of us would permit its use for the sustenance of a sick man, yet we are all cognisant of the elementary and compelling consideration that its consumption will undermine the healthy; and the pity of it all is that the poor and ignorant of this country do, for some reason, harbour the belief that the mere fact of exposure of food for sale in a public place is of itself a sufficient guarantee of wholesomeness. With the modern development of quick transit and cold storage we have reached a carnival of misdescription and fraud. Take a walk through the markets at noon, day by day, for a week, and watch the fish, the poultry, the game, and the meat in particular. The fish has lost its freshness; the frequently invoked hose-pipe has washed away all its scales and odours, and withal an appropriate dab from a kindly-placed bowl of ox-blood gives semblance to a recently departed life. That "filleted haddock" yonder is dogfish or catfish, or cod or ling dyed yellow, and the "finney" haddock was smoked in London; true enough, there is some haddock, buff-dyed, on sale, but it is to be found in the cheap tins labelled "salmon." The baskets and boxes of dressed rabbits will interest you; the former, 5 per cent. of the total, contain locally trapped animals—the latter, foreign and colonial produce, have undergone cold storage and are but recently thawed. Yet all are unblushingly described as Yorkshire trapped rabbits, and it is obvious that with many some degree of putrefaction had preceded the cold storage. Yet follow their market history. The boxes are opened on Tuesday and the market price is 10*d*. On Wednesday they are skinned and the price is 9*d*. On Thursday it is 8*d*. and 7*d*. The flesh and the parietal fat are alike changing colour, and all the while they are being exposed to the dust and dirt of the market ways. On Friday the parietal fat is stripped and the price is 6*d*. The carcass is now appreciably smaller in size and strips of decayed flesh have been removed. Last scene of all is late Saturday night; the price is reduced to 4*d*. Clearance is imperative and the buyer must be tempted, for evidently cold storage is too expensive. At this late hour fish, which earlier in the week was sold at 3*d*. per pound and upwards, is now retailed at 5 pounds for 2*d*., and the stall-holder does not hesitate to express the private view that the food is unfit for his own dog, and that people who buy food at such prices deserve all the ills they suffer. Many of the stall-holders possess branch shops in the town, and to the market at this late hour returns all unsold material; nor does the yellow glare of the stall lamps facilitate any too nice distinction in the various flesh tints. Of the meat and poultry, the less said the better; in and out of the refrigerator they go after exposure to the market dirt, and when during the all-busy Saturday night they arrive once again on the stalls the salesman is ever-ready with his assurance of freshness of condition, knowing full well that putrefaction has simply been stayed and all keeping qualities have departed. About Christmas time you will see old dates and figs undergoing a curious washing process, immediately afterwards to appear on the stalls as "newly arrived" fruit at bargain prices, and on Boxing Day you may witness the sight of unsold turkeys being prepared for their second and perhaps third annual arctic sojourn in the local "frig." Everywhere you may purchase in their dyed skins dyed sausage meat made up of the scrapings of stale meat or perhaps worse. I cannot find evidence either at Leeds or elsewhere that systematic steps are taken to determine the presence of tuberculosis or other communicable disease in this form of food. The retail druggist is equally ready to sell, without let or hindrance, "sausage-dye" or "milk-colouring," or "egg-yolk dye," and the cheap pastry stalls with cakes of wondrous yellow tint are only outdone by the rainbow hues of the sweatmeat trays. Sophistry everywhere. The Jewish butchers serving a community of 25,000 souls do, by ritual law, declare about one-tenth of the animals slaughtered by them to be unfit for human food, yet a standing arrangement exists whereby the carcasses are disposed of whole to non-Jewish butchers. Let us hope the time is not far distant when every butcher will be compelled to provide, on his own premises, ample refrigerator accommodation; when meat and like foodstuffs will not be permitted to be exposed to the dirt and dust of highways; when large public refrigerators will not be permitted to be utilised as a refuge for those destitute of all moral compunction in their desire to store or hide putrid, decayed, unwholesome and degraded foodstuffs.—Mr. Littlewood, Professor A. S. F. Grünbaum, Dr. R. Veitch Clark, Dr. J. Eddison, and Dr. J. Allan took part in the subsequent discussion.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 29th, Dr. H. Ernest Knight, the President, being in the chair.—Mr. E. F. Finch opened a discussion on the Treatment of Fractures and their Results. His remarks were summarised from the examination of 200 cases of fracture of the long bones which had been treated at the Sheffield Royal Infirmary during the five years 1906 to 1910. He summed up the treatment shortly as (1) preventing further deformity; (2) "setting" the broken bone; and (3) fixing the parts at rest. The "setting" must be done by manipulation, with or without operation. It should be more often controlled by the skiagraph. X rays should be used more often in making a diagnosis, particularly in injuries in the neighbourhood of joints and in the carpus and tarsus. Splints, using the word in the broadest sense, must be employed to keep the parts at rest. The functional result is more important than the anatomical. So the lines of strain and movements required must be kept in view rather than the anatomy. One must endeavour, if possible, to anticipate disabilities likely to occur after the injury and to preserve the alignment of the bone. This latter point is of importance in the prevention of traumatic osteo-arthritis, which condition was present in 18 per cent. of the cases. He was of opinion that all fractures of the vault of the skull should be operated on. He considered fractures of the long bones under two heads: (1) those in the neighbourhood of joints; and (2) those of the shaft. In the neighbourhood of the shoulder-joint the treatment should be either by axillary pad or by extension with full abduction of the arm; in the elbow-joint region the forearm should be first supinated and then flexed fully. Passive movement should be delayed for two weeks. Active movement can be allowed after the fifth day. Fractures of the shaft of the humerus are best treated by a double wedge splint. Colles's fracture should always be disimpacted either by manipulation, wrench, or operation. The treatment of fracture of the femur up to 14 years, judging by results, is satisfactory. After this age the question of operation should be seriously considered. Fractures in the neighbourhood of the hip-joint are more common than supposed, giving rise to various degrees of coxa vara. In the neighbourhood of the knee-joint the results following treatment by extension are the best. Spiral fractures of the tibia must be operated on to get good results. In a Pott's fracture the backward displacement must be especially corrected. Details as to the average time in hospital and off work were given.—Mr. F. A. Hadley alluded to the danger of disasters occurring due entirely to the method of treatment, when cases had to be dealt with under unfavourable circumstances, as at

distances in the country. Irretrievable damage might occur to a limb in less than 24 hours which had been put up in complete flexion. Under such conditions some of the older methods were the safest. In operative cases he referred to the difficulty the surgeon often encountered after reaching the bone, in doing anything useful. The greatest value of open operation lay in the removal of bone fragments and blood clot from the soft tissues. Very often simple suturing of the periosteum was all that was required. Plates so often had to be removed that he preferred to do without them unless they were absolutely necessary. The reason that osteotomy was so successful was that the fracture was made whilst the muscles were relaxed.—Dr. D. Gray Newton showed a new truss for moveable kidney. It is designed and made on the cross action principle. The body spring exerts a pressure upwards, backwards, and slightly inwards. The front pad is made of thin metal plates connected by springs. The back pad lies on the opposite side of the body at a higher level, and consists of a thin metal plate to which a ball-and-socket joint mount is attached.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the dispensary on March 7th, Mr. T. H. Ionides, the President, being in the chair.—The following cases, &c., were shown. Mr. H. H. Taylor: Two men on whom he had performed Trephining of the Sclera for Glaucoma, with satisfactory results.—Mr. G. Morgan: A girl, 6 years of age, who showed a Great Enlargement of the External Malleolus of the Right Fibula. Shortly after birth it was noticed that the right fibula at its lower end was larger than the left, but this had not been seen to make any progress till about six months ago. The swelling was not painful or tender, and there was no sense of yielding on pressure. The X rays showed a complete hypertrophy of the whole malleolus, and not an overgrowth of any one part, as in an exostosis. The general opinion was that an exploratory incision should be made to ascertain its nature.—Mr. A. G. Bate: A Uterus removed for Inveterate Prolapse. The interest of the specimen centred round the fact that 15 years ago a double oöphorectomy had been performed for fibroid growth. The organ showed a complete atrophy of the fibroid tissue.—Mr. H. G. Mallam: A Parenchymatous Goitre in a man of 60, which had commenced at about 40 years of age, had gradually increased till five years ago, since when it had remained stationary. It was not causing any symptoms. The treatment had consisted in the administration of thyroid extract and painting with iodine, with no result.—Dr. C. F. Bailey read a paper on Stereoscopic Radiography, which was illustrated by photographs and lantern slides of various bone and visceral lesions.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 1st in the rooms of the Post-Graduate College of the West London Hospital, Mr. W. McAdam Eccles, the President, being in the chair.—Clinical cases were shown by the President and Mr. N. Bishop Harman.—At the commencement of the proceedings the President referred to the death of Lord Lister. Their society had a particular interest in recording the greatness of the work of the man who had gone from amongst them, for he was one of their members. A motion to convey the expression of the meeting to the relatives of Lord Lister was proposed by the President, the members standing to signify their agreement.—Mr. F. L. Provis read a paper entitled "Pain in Women in the Iliac Region and in its Immediate Neighbourhood." He classified the causes of such symptoms as arising from: (1) Certain general disorders; (2) disorders of the nervous system; (3) from abdominal disorders; (4) disorders of the generative organs. The range of the causes of this symptom necessitated a limitation of their review, and he proposed to limit it to the last group. Displacement of the uterus was the most common cause. Palliative measures failed to relieve these cases; surgical treatment was necessary so as to prevent involvement of the appendages. Ventrifixation he thought the best operation. Dysmenorrhœa other than spasmodic was either congestive or inflammatory. Referred pain to the ilium was common. Frequently no alteration of the ovary could be found except tenderness; in such cases there was probably an ovaritis or ovarian neuralgia. It was a neurosis or neurasthenic condition. The fact that in many a slight enlargement of the Fallopian tube could be made out pointed to a possibly inflammatory origin; cases should be treated as such. In a very few cases only was removal of the ovary justifiable. He next considered alterations in the position and relations of the broad ligaments whereby they tended to obstruct the entrance of the pelvis, or became adherent to the gut and obstructed the passage of fæces. It was a true proptosis, and he considered it of fairly frequent occurrence. It necessitated operative interference with subsequent abdominal massage.—The President said that pain in the iliac region was so common that all of them, whatever their particular range of work, would be grateful for the paper of Mr. Provis. It should not be forgotten that it occasionally was found in middle-aged stout males as an indication of digestive troubles. In young women it was not infrequently seen with spinal curvature; the patient often significantly placed the fingers of the hand over the right iliac fossa and the thumb towards the right sacro-iliac synchondrosis. In these cases he thought the scoliosis secondary to some pelvic trouble.—Dr. J. A. Mansell Moullin said the particular conditions spoken of by Mr. Provis were well known and capable of exact diagnosis. The difficulty began when none of these conditions was present. Yet the patient might be a confirmed sufferer, her life rendered almost intolerable by constant aching pain, and they wanted to know the cause of it. He had little doubt that pain was ovarian; it only occurred during reproductive life. He considered it possibly due to the development, growth, and enlargement of the Graafian follicle and its final rupture—pain analogous to that associated with the eruption of a tooth.—Mr. Rickard W. Lloyd and Mr. Herbert W. Chambers joined in the discussion, and Mr. Provis replied.

Reviews and Notices of Books.

The Mechanism of the Heart Beat, with Especial Reference to its Clinical Pathology. By THOMAS LEWIS, M.D. Lond., M.R.C.P. Lond., D Sc., Lecturer in Cardiac Pathology, University College Hospital Medical School; Physician to Out-patients, City of London Hospital for Diseases of the Chest. With 5 Plates. London: Shaw and Sons. 1911. Pp. 295. Price 16*s.* 6*d.*

THIS important monograph, which while containing much new work affords also a review of the most important recent observations upon the cycle of the heart's action in health and disease, is a valuable contribution to cardiac physiology and pathology. Dr. Lewis wisely starts from the beginning and does not assume a knowledge of the methods of investigation on the part of his readers. Although the matters of which he treats are not infrequently complex and involved, and the analysis of some of the records shown is intricate, he writes of them clearly and simply, and explains as he proceeds. The observations upon which the book is based comprise a large number of clinical records and experimental studies. Dr. Lewis has endeavoured to elucidate the abnormal actions of the heart in disease by comparison with similar disturbances artificially produced under experimental conditions. The conclusions arrived at and the suggestions offered in explanation of the commoner forms of cardiac irregularity are based upon graphic records, chiefly polygraphic and electro-cardiographic tracings, with which the book is copiously illustrated. In the preface a high meed of praise is accorded to the results of the graphic method in the investigation of cardiac conditions.

The book opens with a short but clear and well-illustrated account of the recent anatomical discoveries in connexion with the heart. The sino-auricular node and the junctional or conducting tissues with their relations to the network of Purkinje are described, and the current views as to their functions are stated. Intra-auricular pressure curves are discussed and compared with the venous records obtained by the Mackenzie polygraph. This instrument is described and the forms of the normal tracings obtained by its use figured and analysed. The various positive and negative

waves are indicated by the letters a, x, c, x′, v, and y. The incidents occurring in the cardiac cycle simultaneously with each of them are discussed in relation to the production of these waves. Einthoven's string galvanometer is then described, and its application to the record of the heart's cycle is fully explained. The forms of curve obtained with different leads from the body are illustrated, and the variations in the curves are referred to the corresponding occurrences in the cardiac cycle. An interesting chapter is devoted to the presentation of new evidence that the "pacemaker" of the mammalian heart is localised in the immediate neighbourhood of the sino-auricular node. The methods of analysis of arterial pulse curves, of polygraphic and electro-cardiographic records are then described in detail. The production of heart-block experimentally in the mammal forms the subject of a chapter introductory to a full discussion of heart-block as observed clinically. The occurrence of heart-block as a result of experimental interference with the auriculo-ventricular bundle is established by reference to the work of Erlanger, and Cohn and Trendelenburg. In connexion with heart-block in man, the clinical signs and the tracings obtained are reviewed, and then the post-mortem findings in the recorded cases are tabulated and discussed. The conclusions arrived at are that auriculo-ventricular heart-block, as it has been observed clinically, has been due in the great majority of cases, if not in all, to structural alteration in the auriculo-ventricular bundle, and that digitalis and vagal heart-block have been usually the outcome of the action of the drug or the nerve upon tissues already deficient in the power of conduction.

In classifying and analysing other disturbances of the cardiac rhythm Dr. Lewis finds that the five cardiac functions of rhythmicity, excitability, contractility, conductivity, and tonicity, which have been used by many other writers as the basis of classification, are not satisfactory for that purpose. He therefore substitutes a scheme by which the beats observed are divided into two classes—homogenetic and heterogenetic, the former being of spontaneous origin in areas of muscle unaffected by extraneous impulses, the latter being exclusively of pathological character and presenting well-defined time relations, differentiating them from normal beats. The so-called idio-ventricular rhythm is given as an example of a homogenetic rhythm, certain premature ventricular beats, or "extra systoles," as instances of heterogenetic contractions.

The characters of heterogenetic contractions originating in various parts of the heart are then described, and the methods by which they can be referred to their source of origin are explained. Various heterogenetic rhythms of ventricular and auricular origin are then discussed, and examples are given both of experimental and clinical varieties of each. Upon the basis of these observations the obscure condition of paroxysmal tachycardia is analysed. A classification of tachycardias in general is given, homogenetic and heterogenetic varieties being separated. The latter are subdivided, various grades being separated, according to the situation of origin of the ectopic rhythm up to the extreme form of auricular fibrillation. The evidence upon which the conception of auricular fibrillation is based is then presented. Its occurrence as a clinical entity, both in man and the horse, is established, and its application to the explanation of cases of complete and permanent irregularity is discussed in an exhaustive and interesting fashion. Other conditions examined in connexion with the heart beat are bigeminy, the vagus, the Adams-Stokes syndrome, and alternation.

Dr. Lewis dedicates his book to James Mackenzie and Willem Einthoven, and expresses his indebtedness to the Beit Memorial Research Fund for the leisure in which to write. His book constitutes an important addition to our knowledge of the cardiac action, and we have read it with great interest.

Prevention of Disease and Inefficiency, with special reference to Indian Frontier Warfare. By Lieutenant-Colonel PATRICK HEHIR, I.M.S. Second edition. Allahabad: Pioneer Press. 1911. Pp. 656.

THIS volume is a full and comprehensive treatise on hygiene and preventive medicine as applied to India, and especially with reference to military conditions and requirements. After an introduction dealing with elementary notions as to the physical geography and climate of the country, and the importance of health preservation from the public service point of view, the author deals in Part I. with the physical training and development of the soldier; in Part II. water-supply, air and ventilation, food and dieting, the construction and sanitation of barracks, and the proper management of camps and cantonments are considered; Part III. treats of personal hygiene; and in Part IV. the prevention of disease in peace and war, and the causation and prevention of the principal tropical diseases individually are somewhat fully discussed. Parts V. and VI. deal shortly with statistics and Indian frontier sanitation in warfare. It is seen that the scope of the work is considerably more extensive than its title would lead one to expect. It is a manual of hygiene with special reference to Indian conditions, as to which Lieutenant-Colonel Hehir's experience and previous published work entitle him to speak with authority.

In regard to acclimatisation, the author alludes to the European soldier as being transferred suddenly from the United Kingdom, with an average temperature of 51° F., to India, with an average of 82°. The "average" temperature for these islands has some hygienic significance, but one might as well speak of the average temperature of Europe as of that of India; even the word "climate" is used by Mr. H. F. Blanford in the plural when applied to India; still less can any idea be attached to "average temperature" when referring to such a vast and varied extent of the earth's surface. The advice given as to the mode of life and precautions to be taken for the preservation of health is excellent. The description of water-supplies and of the risks to which they are exposed is also comprehensive and judicious. As to the examination of water, perhaps more importance is attached to chemical analysis than would now be generally admitted, but the bacteriological examination is so delicate in its technique as to be almost impossible of attainment under ordinary conditions of military service in India. As to filtration, it is said that there is little to choose between the Chamberland and Berkefeld forms. If arrest of germs is the object sought for, there is a good deal of difference between them, as the work during recent years of Bulloch and others has shown; whether either of these, or any other bougie form, is suitable for ordinary Indian use is a matter of doubt; the closest and most constant supervision is necessary. Colonel Hehir does not mention the recent work of Haldane and others on ventilation, and still considers carbon dioxide and organic effluvia to be the chief harmful factors. It is the temperature and the humidity that are now recognised as being more important.

The subject of food and dieting is comprehensively treated, the author being acquainted with most of the varied conditions obtaining in India. In regard to British troops, he makes the excellent recommendation that their principal meal should be served in the evening, a light lunch only being taken in the middle of the day. This has been suggested before, but a deeply rooted conservatism has hitherto resisted any change; in time it will probably come about (note that the old-fashioned heavy "tiffin" has now been generally given up), and people

will wonder why it was not done before; as the author says, "from a physiological and hygienic standpoint the change has all in its favour." Colonel Hehir is very temperate in dealing with the alcohol question; abstinence is to be encouraged, but the men are not to be coerced into *total* abstinence. The detailed information as to sanitation of barracks, camps, and cantonments is very useful. The author has done excellent service in gathering together and clearly setting down the experience of old residents in the tropics for the benefit of military and civil officers newly arrived in the country. "At the risk of being considered old-fashioned," he strongly recommends the so-called cholera belt as an indispensable article of kit, though "many British officers consider it a fad." A full account is given of the necessary measures in all the important preventable diseases that occur in India, Malta fever and sandfly fever not being overlooked. In the concluding pages some points of organisation in regard to frontier campaigns are dealt with, and a few statistical data as to disease prevalence in such warfare are detailed; in the next edition the author might usefully enlarge on this part of his subject.

We have indicated the scope of Colonel Hehir's treatise, which will be of great use to all medical men in India. The Commander-in-Chief (to whom the book is dedicated) contributes a short preface, and refers to the increasing interest in disease prevention that has been awakened in India during recent years. Sir O'Moore Creagh is known himself to be well acquainted with military sanitary arrangements; his commendation of the present work will doubtless lead to a wider diffusion of knowledge on the subject throughout the country.

Annual Report of the Proceedings of the Diseases of Animals Acts of the Board of Agriculture and Fisheries for the Year 1910. London: Wyman and Sons.

THIS brochure embodies the report of the Chief Veterinary Officer of the Board of Agriculture, Mr. S. Stockman, M.R.C.V.S., and the Assistant Secretary of the Animals' Division, Mr. A. W. Anstruther, and is particularly interesting this year because of the recent foot and mouth outbreaks amongst cattle. The Board, and especially the Veterinary Department, deserve great credit for the success which has attended their recent efforts against this highly contagious disease which periodically devastates the herds of cattle in certain European countries, and which once played such havoc and caused such loss amongst the dairy cows of Great Britain. The "stamping-out" method may be drastic, but it is undoubtedly effective, and for a country like Great Britain, which is surrounded by water, there is no doubt that it is the best prophylactic measure to adopt.

At the laboratory 3782 specimens were received and were reported upon from animals which were suspected of swine fever, anthrax, sheep-scab, glanders, rabies, epizootic lymphangitis, and pleuro-pneumonia. It is gratifying to note that in none of the specimens suspected of the three latter diseases was the diagnosis confirmed, and so England is still free of these scourges. Experiments are being continued upon epizootic abortion of cattle. A new variety of trypanosome has been discovered, the first to be reported in British cattle which have never been out of this country. The hypoderma bovis and its pupa stage (the warble), also sundry varieties of ticks found on sheep and cattle, have been the subject of a series of observations of great interest to medical entomology, and the notes are worth perusal by scientists engaged in like pursuit. Sixteen valuable pedigree cattle were immunised against red-water before being shipped to the colonies, a new departure, for the carrying out of which Mr. Stockman's experience in the Transvaal, before he became chief of the veterinary staff of the Board of Agriculture, renders him particularly fitted.

The Assistant Secretary of the Board, Mr. Anstruther, in the portion of the report which emanates from his pen, deals ably with the rules and regulations which have been so effectually carried out by his staff, and the two sections (the veterinary and the lay inspectors) have worked loyally together.

In its many-sided capacities, and dealing, as it of necessity does, with all classes of animal, the officers of the department have their hands very full, and the tabular statistics at the end of the report give ample evidence of the enormous mass of work which comes under their control. There is no country in the world where the work is carried out in a better fashion, and by the presence of an efficient department of this kind the agricultural community is saved many hundreds of thousands of pounds annually.

Meine Präparationsmethode des Operationsfeldes mittels Jodtinktur. Von Kgl. Rat Dr. ANTONIO GROSSICH, Primarchirurg am Ospidale civico in Fiume. Berlin and Vienna: Urban and Schwarzenberg. 1911. Pp. 80. Price 3 marks.

THE employment of a solution of iodine was introduced in the spring of the year 1907 by Dr. Grossich, who in this volume gives a full account of his method. It is too often believed that the use of solutions of iodine in surgery is recent. Several surgeons, however, used iodine in various ways in surgery at least as long ago as 1880, but it is certain that the publication by Dr. Grossich of his use of iodine has led to a very wide employment of it all over the world. This volume contains an account of the mode of using iodine in wounds, in aseptic operations, and in septic operations, and the results obtained are described. The author discusses the various harmful complications that have been said to follow its use, and shows that for the most part no harmful effects occur. It is important for the reader of this book to bear in mind that the tincture of iodine employed by Dr. Grossich is a 10 per cent. solution, and that it is four times as strong as the tincture of the British Pharmacopœia. The author, of course, lays great stress on the importance of not washing the skin before the iodine is applied. The volume contains also reprints of three papers already published by the author on the subject, and he gives abstracts of a large number of the articles written by other surgeons on the same subject. These abstracts occupy more than half the book.

The Significance of Existence. By I. HARRIS, M.D. Koenigsberg. London: Longmans, Green, and Co. 1911. Pp. 324. Price 6*s.* net.

IN his preface Dr. Harris almost disarms criticism by saying "much in this book is incomplete, and some of its statements are sure to call forth criticism"; but should the critic ask why, then, was the book written? he is answered in the next sentence, "I hope that the general conclusions arrived at will not thereby materially suffer." The first chapter is entitled "Infinite and Finite" and its obscurities are seen to depend on the author's puzzling interpretation of the meaning of words. For instance, on p. 26 we read, "Finite and infinite do not exclude each other, they do not possess antagonistic characteristics, but their relation to each other is really corresponding to that subsisting between the adjective round and the noun blue." On p. 28 are two conclusions which materially suffer from the same cause. The following are the quotations: "We must conclude, therefore, that existence possesses the following attributes, eternity, infinity, and causelessness. But in the same existence *finity* (*sic*) must

be included"; and "we conclude, then, that finity stands in the same relation to infinity as eternity stands to infinity—namely, that they are attributes of existence in exactly the same sense." A printer's error on p. 47, "a thousandth of which compose an atom of hydrogen," makes one hope that the obscurity of the quoted sentences may in part be due to printers' errors; but whatever words are substituted, the meaning in many places eludes the reader. On p. 289 it is stated that "the very essence of harmony is to produce an alternate state of activity and repose." Why of harmony? There might be some conceivable meaning by substituting for it the expression "a drum tattoo." Most of us understand by harmony the combination of certain simultaneous notes. What has this to do with an alternation of activity and repose? In the last chapter, headed "Recapitulations and Conclusions," occurs the following: "There is hardly a conclusion of graver importance to humanity and resting on a less secure foundation than the generally accepted notion of the existence of an aim in life (p. 314) ..... the whole idea of purpose and aim in life, based as it is on erroneous conclusions, has, since the dawn of civilisation, proved itself the most potent factor in retarding and stunting humanity" (p. 317). The final conclusion is reached on p. 322: "Man will only become himself again when all values are swept out of existence, moral or otherwise ..... every faculty should be studied according to its peculiar nature ..... without aiming at any ulterior purpose. ..... Whither the activities of our impulses lead us is no business of ours to inquire ..... we are even unable to say that progress, for instance, is a more desirable state of existence than retrogression" (p. 323). For those who hold such views the book may be of interest.

JOURNALS AND MAGAZINES.

Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., E. A. MINCHIN, M.A., F.R.S., and GILBERT C. BOURNE, M.A., F.R.S. February, 1912. London: J. and A. Churchill. Price 10*s.* net.—The opening article of this number is on the Condition of the Epidermal Fibrils in Epithelioma, by Mr. George Arnold, M.Sc., from the Cancer Research Laboratory, University of Liverpool. His observations were made in the course of some experiments which were carried out with the object of demonstrating chondriosomes in malignant tissues. In the course of a synopsis of previous writings on the subject of epidermal fibrils and chondriosomes from those of Ranvier in 1879, to those of Meves in 1911, he states that the following nomenclature is now in general use: (1) Mitochondria, granules which may be arranged in chains or scattered through the cytoplasm; (2) chondriokonts, rod-like bodies or threads which may sometimes arise from the fusion of rows of mitochondria; and (3) chondriosomes, a general term to include all cytoplasmic structures which are of the nature of mitochondria or chondriokonts. Mr. Arnold's observations throw some light on the origin of the well-known "cell nests" occurring in epitheliomata, and also go to support the view of Rosenstadt that protoplasmic bridges between one prickle-cell and another do not exist. The material used was cut from the central portion of an epithelioma of the tongue tangentially to its free surface. Immediately after removal it was fixed in Flemming's solution, modified according to the formula of Meves for the specific staining of chondriosomes. The sections (5μ thick) were stained with Heidenhain's iron-alum hæmatoxylin and counter-stained with orange G. The microscopic appearances are minutely described in the memoir and figured in a coloured plate. The general conclusions are summed up as follows. The malignant cells composing an epitheliomatous growth undergo a gradual degeneration which may take two paths. 1. When the cell obtains an excess over the normal of fibrillar material the fibrils form a mantle round the nucleus which atrophies, and this is followed by the death of the cell. Such cells usually collect into groups and form the epithelial pearls or cell-nests. 2. In the other form of degeneration cells from which the fibrils have been withdrawn are brought to an end by the breaking down of the nuclear membrane, the dissolution of the contents into the cytoplasm, and finally by the fragmentation of the whole cell. Mr. G. R. Mines contributes a note on the Mechanism of Discharge of the Cuvierian Organs of Holothuria Nigra. It is well known that when this creature, the large sea-cucumber common at Plymouth, is irritated it responds by emitting a number of white conical bodies. These, the Cuvierian organs, rapidly elongate, shooting through the water while remaining attached at their bases to the animal, to form long, intensely sticky tubes. Mr. Mines found that by introducing a fine glass cannula or a hypodermic needle into the base of an undischarged organ and injecting fluid, the tube is shot out in precisely the same way as in a normal discharge by the living animal. The pressure needed to cause elongation of the tubes is about 20 or 30 centimetres of water. He also found experimentally that there was a rise of internal pressure in holothuria on irritation, and he believes that the discharge of the Cuvierian organs is due to forcible injection of the tubes with water. Freda Bage describes the Histological Structure of the Retina of the Lateral Eyes of Sphenodon Punctatus, with special reference to the sense-cells. The observations were made in the Zoological Department of King's College, London. After an exposition of the methods of preparation and a general account of the various layers of the retina, it is stated with regard to the sense-cells that sphenodon appears to form no exception to the rule that cones only are present, to the exclusion of rods, in the reptilian retina. It is generally admitted that oil globules do not occur in rods, but they are present in nearly all the visual cells in sphenodon. In this memoir the retinal cones of sphenodon are classified as (1) ordinary single cones; (2) small single cones; and (3) double cones subdivided into (*a*) near cones, and (*b*) far cones. The longest of the memoirs in the present volume is on the Problem of Sex Determination in Dinophilus Gyrociliatus, by Mr. Cresswell Shearer. In the conclusion of his paper, which is illustrated by a profusion of coloured plates, he states that the most singular feature of the phenomena observed was the peculiar manner of early fertilisation and the subsequent division of the sperm in the oögonial cells. This would seem to be without parallel, although something similar possibly takes place among the rotifers.

Journal of Pathology and Bacteriology. (Official Organ of the Pathological Society of Great Britain and Ireland.) Vol. XVI., No. 3. Published from the Department of Pathology, University of Cambridge. Price 7*s.* 6*d.* Yearly subscription, £1 1*s.*—Dr. Ernest E. Glynn and Dr. G. Lissant Cox, of Liverpool, in Further Observations upon Certain Sources of Error in the Opsonic Technique, record the results of an investigation into the effect of rotation of the opsonic pipette during incubation; rotation once every two minutes has the same effect on phagocytosis and experimental error as keeping the pipette stationary; a rotation once every half minute or less increases the error. If the leucocytes are allowed to stand in normal saline solution at room temperature for two hours the error is increased and there is diminution of the phagocytic capacity. An emulsion of staphylococcus in normal saline solution does not settle appreciably in two hours. Dr. J. F. Gaskell,

who carried out his investigations in Freiburg, describes the Changes in Glomeruli and Arteries in Inflammatory and Arterio-sclerotic Kidney Disease, and attempts to reconcile the pathological conditions found in various forms of contracted kidney with the clinical manifestations. The changes dealt with are divided into two groups: 1. Those accompanying and consecutive to inflammation of the kidney, in which lasting inflammatory changes are always due to true glomerulo-tubular nephritis. Interstitial and tubular inflammation alone does not lead to chronic changes. He distinguishes three stages: (*a*) the acute stage—acute parenchymatous nephritis; (*b*) the stage of repair—the large white kidney, in which death may or may not be due to the renal condition; (*c*) the sclerotic stage—the secondary contracted kidney, which usually causes death by uræmia at an early age. He also describes embolic focal nephritis, the ulcerative endocarditis type where the clinical picture is that of the cardiac condition. 2. Those primarily vascular in origin: (*a*) the senile arterio-sclerotic cases found in old people, where the vascular degeneration spreads from the large arteries to the renal vessels, and there being no hypertrophy of the heart, death is due to intercurrent disease; (*b*) the genuine *Schrumpfniere* cases with widespread vascular changes, especially in the brain, and marked hypertrophy of the heart. In this class death is usually due to cerebral hæmorrhage. The author claims that the microscopic picture is different in all these types of renal disease, and the paper is accompanied by plates giving examples typical of each condition. Dr. J. W. McLeod, of Glasgow, writing on the hæmolysin produced by pathogenic streptococci and on the existence of anti-hæmolysin in the sera of normal and immunised animals, says that by growing certain strains of pathogenic streptococci on bouillon containing from 15 to 20 per cent. of horse serum, previously heated for one hour at 56° C. and slightly alkaline to litmus, he is able to obtain actively hæmolytic cultures. The hæmolysin is not entirely endotoxin, and the filtrate obtained by using a Maassen or Doulton filter is actively hæmolytic, though to a less degree than the original culture. The streptolysin is greatly weakened by heating at 49° C. for 30 minutes and destroyed by heating at 55° C. for the same period; its power is unimpaired by placing it in the ice-chest for from eight to ten hours. The impairment which takes place under the above conditions is not due to formation of streptolysoid, but to the formation of a number of more feeble hæmolytic molecules, and partly also to the complete destruction of another portion of the molecules. In man, horse, rabbit, and guinea-pig an anti-hæmolysin is normally present in the serum—in equal amounts in the sera of different animals of the same species; it is not an albuminoid globulin, but is probably lipoid in character. Injection of the streptolysin into the ordinary laboratory animals fails to produce an immune anti-hæmolysin, nor is any such body to be found in the sera of men who have suffered from prolonged streptococcal infections. No hæmolysis follows the injection of the streptolysin into living animals. From an examination of many strains of streptococci from various sources, the author concludes that virulence and hæmolytic power are closely associated among the pathogenic streptococci. Dr. H. H. Dale and Mr. P. P. Laidlaw, of London, describe a Simple Coagulometer in the form of a narrow glass tube containing a small shot. The time of coagulation is that at which the shot fails to fall, when the tube, filled with blood, is held in a vertical position. The operation takes place in a water bath between 35° and 40° C. Sources of error are discussed and tables of results given. Dr. J. O. Wakelin Barratt, of Liverpool, in a paper on the Incomplete Fixation of Complement and Amboceptor, gives the results of an investigation into the extent to which complement and amboceptor contained in serum are withdrawn by the addition of small amounts of antigen, furnished by red blood cells. He concludes that the hæmolytic power of serum is unaltered by varying the proportions of amboceptor and complement present, provided that increase in the one is accompanied by diminution in the other. If complement and amboceptor are withdrawn from normal serum, by the addition of rabbits' red cells as antigen, the amounts withdrawn are proportional to the amounts present in normal serum. If the bodies are present in serum in proportions differing from those obtaining in normal serum the addition of antigen withdraws them in unequal amounts; if complement is present in excess, more complement than amboceptor is withdrawn, but if complement is present in subnormal proportions, the amount withdrawn is proportionately small. An obituary notice of Professor Henri Stilling, of Lausanne, is contributed by Dr. Marullaz. Abstracts of the Proceedings of the Liverpool Meeting of the Pathological Society of Great Britain and Ireland occupy 25 pages of the journal.

Jahreskurse für Aerztliche Fortbildung. Munich: Lehmann. Price 16 marks yearly.—As usual, the January number is given up to a review of general biology and pathology. Professor Johannes Müller contributes an article on the Nature of the Chemical Processes in the tissues, and Professor Lubarsch writes on the Pathological Significance of the Thyroid, Thymus, and Pituitary Glands. The first contribution discusses in considerable detail the essential nature of the chemical processes that take place in the cells of the body generally, with only passing reference to a few diseases, such as diabetes. The modern doctrine is expounded and illustrated that the protoplasm of the cell is in a state of high chemical instability, subject to the reactions of intracellular ferments which are reversible in their action (as Croft Hill was the first to point out). Certain of these ferments are well recognised, such as those bringing about autolysis, and the diastatic and lipolytic enzymes of the tissues. The synthesis of the complicated molecules in protoplasm is due to the reversed action of the same ferments, energy being supplied by the absorption of heat, whereas when these substances are resolved into simpler components heat is evolved. Professor Lubarsch describes briefly the effects of removing the thyroid gland in man and animals, and gives a description of the parathyroid glands, which are believed to regulate the calcium metabolism of the body. Changes have been described in them in cases of tetany, osteomalacia, puerperal eclampsia, and other diseases in man. Just as the parathyroids regulate the calcium metabolism, so the thyroid deals with the iodine and phosphorus compounds of the body. An account is given of the changes in the various organs in cretinism. With regard to the causation of goitre, it is pointed out that after heating the water of the famous Kropfbrunnen (goitre-wells) to 80° C., it will no longer induce the disease in animals. But passing it through a Berkefeld filter does not alter it in this respect (Wilms, Birscher, Kolle), which is evidence against a bacteriological causation of endemic goitre. The pathology of Graves's disease and its relation to iodine are discussed at length, also the "thyroid heart" and the various somatic and visceral abnormalities. The review closes with an excellent account of the relation of the thymus to disease, and especially to sudden death; followed by a few words on acromegaly and splanchnomegaly in association with lesions of the pituitary gland.

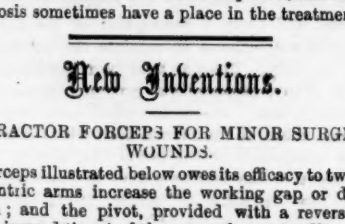
The February number contains an article by A. Hoffmann on Cardiac Weakness, and another by R. Staehelin on the Causation and Treatment of Bronchial Asthma. Hoffmann points out that we no longer rely, as we once did, principally on the occurrence of murmurs or on enlargement of the area of cardiac dulness to make a diagnosis of impairment of the heart's action; the latter,

in some circumstances, may even be a favourable sign Later came a time when irregularity of the pulse-rate was regarded as of grave significance, but now we know that it may persist for years. Attention has more recently been directed to the blood pressure and to observation of the electro-cardiogram. He discusses heart weakness under the headings of Absolute Cardiac Insufficiency, in which the heart is unable to do its ordinary work without disturbance, and Relative Cardiac Insufficiency, in which it can respond to ordinary, but not to extraordinary, demands upon it. It is much easier to diagnose the first than the second, which includes those cases in which the heart falls under the influence of anæsthetics, operations, confinements, and so on. Warning may be given by such signs as dyspnœa or cyanosis. Blood-pressure measurements, plethysmography, Sahli's sphygmobolometer, or electrocardiography may also be of assistance. The treatment of both conditions is discussed, reference being made to exercises, baths of various sorts, and drug treatment by digitalis, camphor, caffeine, and other well-known substances. There is a brief summary of recent researches on the heart, in which the work of Lewis, Keith, and other English observers is mentioned as well as that of a number of Germans. Staehelin passes in review the various theories of the causation of bronchial asthma, the diaphragmatic cramp theory, the bronchial spasm theory depending on vagus impulses, the secretion theory based on the occurrence of Curschmann's spirals, Charcot-Leyden crystals, spangle-epithelium, and eosinophile cells, and the theory of swelling of the bronchial mucous membrane. He thinks it probable that the underlying factor is a vagus impulse leading to all three of these changes. With regard to treatment of the attack, the psychological factor has to be considered, also various methods for altering the rhythm of the breathing. Of drugs, morphia is given the first place. Atropine and adrenalin are also discussed. Between the attacks, potassium iodide may be given, and measures taken to deal with nasal polypi, pharyngitis, or constipation, all of which may provoke the spasms. Preparations of atropine are recommended, and so are the various nasal inhalations, which may be combined with cocaine. The breathing of asthmatics must be disciplined, and suggestion and hypnosis sometimes have a place in the treatment.

New Inventions.

RETRACTOR FORCEPS FOR MINOR SURGERY WOUNDS.

THE forceps illustrated below owes its efficacy to two points: the eccentric arms increase the working gap or degree of excursion; and the pivot, provided with a reverse screw, stops the inward thrust of the arms when extending the sides



of the wound. The kidney-shaped handles give a better hold, and, when the instrument has been fully extended, they overlap or occupy less space. My design has been carried out by Messrs. Mayer and Meltzer, Great Portland-street, London, W.

H. ELLIOT-BLAKE,
Bo nor. M.R C.S. Eng., L R.C.P. Lond., L.S.A.

BRITISH MEDICAL BENEVOLENT FUND.

AT the February meeting of the committee 28 cases were considered and grants amounting to £381 made to 27 of the applicants. Appended is an abstract of the cases relieved:—

Daughters, aged 50 and 48, of M.D. Aberd. Means very slender and health indifferent. Voted £2, and application to be reconsidered.

Widow, aged 45, of M.D. Edin. Has been in very poor health since the death of her husband last year, and asks for a little help to meet unavoidable expenses. Voted £5.

Widow, aged 50, of L.R.C.P. Practically unprovided for at husband's recent death after a long illness, but hopes to maintain herself and her children by taking boarders. Voted £10.

L.R.C.P., L.R.C.S. Edin., aged 55. Asks for a little help to tide over difficulties, which are quite expected to be temporary. Voted £10.

Widow, aged 46, of M.B., C.M. Aberd. Husband's savings quite exhausted by a long illness ending in death, and although temporarily earning sufficient to support herself, has incurred heavy expenses owing to the ill-health of a daughter recently deceased. Voted £10.

M.R.C.S., aged 55. Has had bad health for the last ten years, and has recently been incapacitated for several months, during which his practice has almost disappeared and unavoidable debts have been incurred. Proposes to make a fresh start in the colonies. Voted £10 towards passage money if emigration is decided on.

Widow, aged 41, of M.B., C.M. Edin. No income; has recently lost her husband after a two years' illness, and has five children to support. Voted £12.

M.R.C.S., aged 84. Only income a small Poor-law pension. Relieved twice, £24. Voted £12.

Daughter, aged 55, of late M.R.C.S. No income, and through failing eyesight is unable to earn more than a few shillings a week, which goes to support not only the applicant but two sisters who are quite unable to earn their living. Relieved twice, £36. Voted £18.

Daughter, aged 60, of late M.R.C.S. No income, and unable to earn a living on account of a painful deformity. Voted £12.

Widow, aged 56, of L.R.C.P. Edin. No income and practically dependent on a daughter earning only a few shillings a week. Relieved twice, £20. Voted £12.

Widow, aged 42, of M.R.C.S., L.R.C.P. Since husband's death, three years ago, has been endeavouring to establish a boarding-house, but has now exhausted her small capital. Three children, aged 13 to 6. Relieved twice, £24. Voted £10.

Widow, aged 52, of L.R.C.S. Edin. No income; endeavours to support herself by nursing, but has no certificate. Children unable to help. Voted £12.

Daughter, aged 63, of late M.R.C.S., L.S.A. Supplements a small pension from a charitable society by taking boarders, but finds increasing difficulty in meeting her expenses Relieved once, £10. Voted £10.

Widow, aged 67, of L.R.C.P., L.R.C.S. Edin. No income and unable to obtain employment; no children. Relieved four times, £34. Voted £12.

Daughter, aged 37, of late M.R.C.S. Is a nurse by profession, but unable to support herself as such owing to incurable deafness, and is consequently dependent upon uncertain earnings from needlework, &c. Relieved seven times £63. Voted £10.

M.R.C.S., aged 77. Was appointed doctor to a Medical Aid Association 18 months ago but has found it impossible to obtain his salary. Relieved once, £18. Voted £6.

Widow, aged 63, of M.R.C.S. Had a little capital at husband's death some years ago, but lost it in the attempt to establish a boarding house and is now quite without means. Relieved once, £12. Voted £12.

Daughters, aged 71 and 64, of late M.R.C.S. Were fairly provided for at father's death but have lost practically everything through unfortunate investments and are now living together in a bed-sitting room. Relieved once, £18. Voted £18.

Widow, aged 70, of M.R.C.S. Nursed and supported her husband for several years and is now dependent for a home on a son-in-law who can ill-afford to help. Relieved twice, £20. Voted £10.

Widow, aged 67, of L.F.P.S. Glasg. Has supported herself with occasional grants from this fund, since her husband's death 38 years ago, but is now dependent on a daughter earning £1 a week as a cashier. Relieved seven times, £72. Voted £12.

Widow, aged 67, of M.R.C.S. Only income a small pension from another charity, and is frequently laid up for some months together owing to a chronic affliction. Relieved seven times, £64. Voted £5.

Daughter, aged 61, of late L.S.A. Has supported herself for several years by letting lodgings, but finds increasing difficulties owing to ill-health and competition. Relieved three times, £36. Voted £12.

Widow, aged 62, of M.R.C.S. Quite unprovided for at husband's death five years ago, and endeavours to maintain herself by receiving boarders. Children only just self-supporting. Relieved once, £12. Voted £10.

Widow, aged 62, of M.R.C.S. Quite unprovided for at husband's death, and dependent on a married son earning a small weekly wage as a shop assistant. Relieved eight times, £94. Voted £12.

Widow, aged 62, of M.R.C.S. No income, and health indifferent; children only able to give slight assistance. Relieved 13 times, £147. Voted £12.

Widow, aged 53, of M.R.C.S. Since husband's death has tried to support herself by taking boarders, and is now in difficulties which she hopes will be temporary. Relieved twice, £22. Voted £5.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, W.

A CONFERENCE ON DIET IN SCHOOLS.—The National Food Reform Association is making arrangements for a conference on diet in public secondary and private schools to be held at the Guildhall, London, on Monday, May 13th. The Lord Mayor will preside at the opening session.

THE LANCET.

LONDON: SATURDAY, MARCH 16, 1912.

The Report of the Royal Commission on Vivisection.

THE report of the Royal Commission on Vivisection has at last been completed and published; and we are happy to be able to speak favourably of its recommendations, which throw only a single small sop to unreason, and in the main both satisfy the minimal requirements of the medical profession and protect the public against any dangerous interference with that prosecution of research which is necessary both for the continued improvement of the art of healing and for the attainment of increased power to prevent the occurrence of disease. The opponents of experimentation upon animals have very generally endeavoured to confuse the public mind by representing that experiments are performed in the interests of the medical profession alone, and that it is the duty of enlightened persons to protect the lower animals against cruelties which are perpetrated for the mere gratification of curiosity. The truth is, as everyone knows who has given a moment's impartial consideration to the subject, that an increased knowledge either of the causes or of the means of cure of disease is a direct and actual gain to the public, and is in some degree a loss to the medical profession, whose services are less in demand when the occurrence of disease is prevented, or when its course is curtailed by effective remedies, than when neither of these conditions is fulfilled. We have a crucial example in the case of rabies in the dog, with its necessary complement of hydrophobia in the human subject. The nature of the disease and the channels of its diffusion were made known by experiment; and this knowledge having been applied in practice by the sagacity of Mr. WALTER LONG, without regard to the clamour of ignorance, the disease has disappeared from this country, and need never be permitted to return. Its absence cannot be said to have been of any special advantage to the medical profession, whose chances of infection were comparatively small, and whose aggregate remuneration must to some extent have been diminished; while it is noteworthy that the experiments by which the nature of hydrophobia was elucidated have also served to throw much light upon other obscure maladies of the cerebro-spinal system, such as epidemic meningitis and poliomyelitis. The fact is that, with improved methods and instruments of research, fresh questions are daily offering themselves for solution, and that these questions can only be solved by experiment. There has been no other method of discovering truth in the past, and it is certain that, so far as can be foreseen, no other is likely to present itself in the future.

The profession has borne with exemplary patience the accusations of wanton cruelty which have been brought against medical men of the highest distinction, and have probably thought that the personal peculiarities of the accusers furnished a sufficient refutation of them. They will none the less be gratified that these accusations have been carefully examined and tested by the Commissioners, and that the verdict based upon personal knowledge has been absolutely ratified by systematic inquiry. The stock agitators are dismissed with a few brief words, the Commissioners declaring that the existing Act has been administered by successive Home Secretaries and their subordinates "with good faith and with careful consideration of its terms," and that the holders of licences and certificates, with rare exceptions, "have endeavoured with loyalty and good faith to conform to the provisions of the law." It is further said that those who came before the Commission to give testimony in support of charges of cruelty "have either misapprehended or inaccurately described the facts of the experiments," and it is courteously contended that the witness must have been mistaken who described the results of an operation which had never been performed. This was the case of the marmot, which was for the time in a state of partial paralysis as a consequence of imperfect recovery from its natural hibernation, and which was said by Miss LIND-AF-HAGEBY to have had its spinal cord divided. As a matter of fact, nothing had ever been done to it, and it lived for two years after the alleged operation in perfect health. After dealing with such cases the Commissioners go on to warn the public against the falsehoods contained in circulars and advertisements which are freely distributed through various channels, and which they describe as calculated to mislead the public by suggesting that the animals in question were not under an anæsthetic. To represent that animals subjected to experiments in this country are wantonly tortured would, in the opinion of the Commissioners, be "absolutely false." They are, nevertheless, solicitous on the subject of pain which may be produced as an after consequence of experiment, as, for instance, of an inoculation which causes disease, and they desire the framing and enforcement of regulations under which animals thus suffering should be destroyed immediately, whether the object of the experiment had or had not been attained. It is mainly upon this point that Colonel LOCKWOOD and Sir WILLIAM COLLINS have added a memorandum to their signature of the general report, a memorandum in which they ask for more stringent regulations on this point than those with which the majority of their colleagues would be satisfied. Dr. GEORGE WILSON adds his signature both to the general report and to the memorandum, and appends also a long memorandum of his own, which is critical of the results obtained by vivisection. It seems obvious that a cast-iron rule to destroy every animal that was, or that to some inspector might appear to be, in pain after an experiment, even although the object with which the experiment was performed had not been attained, would in the long run defeat itself, and would be certain to multiply similar experiments in the hope that manifestations of pain might be avoided. The Commissioners rightly call attention to the fact that public opinion sanctions the infliction of

pain for the purposes of sport, for such operations as castration and spaying, and for the destruction of vermin by traps or painful poisons; and it is manifestly absurd that what is permitted on these grounds should be absolutely prohibited when the attainment of useful knowledge is at stake.

The Act under which experiments on animals are now conducted was passed in 1876, and every one of the intervening years has afforded fresh evidence of its value. In the interval the two great English Schools of Tropical Medicine, the London and the Liverpool, have come into existence, and have justified the wisdom of their founders by the continued discovery of new truths concerning the nature and causation of maladies by which extensive portions of the earth's surface have been closed to civilised man, or were only penetrated at the cost of almost certain death. The interval covers practically the whole attainment of the knowledge of the present day concerning the conveyance of disease by blood-sucking insects—a knowledge which promises eventually to open up the greater portion of the African continent to colonisation and industry. It has shown that the flea is an active cause of the diffusion of a malady which is even now destroying thousands of lives annually, and it has cast grave suspicion upon the bug as a possible means of communication of leprosy, the bacilli of which are said to have been discovered unharmed in the alimentary tract of the insect some considerable time after they had been ingested. The great home question of tuberculosis has been only sufficiently elucidated by experiment to show the directions in which further research is required; and the institution and conduct of such research is one of the most pressing medical necessities of our day. It is a great relief to all right-thinking people to know that the splendid work of the recent past will be continued with the added prestige conferred upon it by this report. The recommendations of the report, which we shall later deal with in some detail, contain nothing which should hamper the progress of science, while the document is a remarkable reply to the malignant abuse under which much of that progress has been made.

A "Mental Defect Bill."

THE statements made in the House of Commons by both the Prime Minister and the Home Secretary that it was the intention of the Government to introduce during the present session a measure for the care and control of the feeble-minded must have been received with satisfaction by the many persons who are interested in this pressing social reform. It is now four years since the Royal Commission appointed to investigate this subject, after a like period of exhaustive inquiry, made its report, which included a long series of recommendations as to the needed legislation. These recommendations comprised a well-considered scheme covering the whole ground, based on the broad fact that mental defect which renders an individual unable to control himself or his affairs is widely met with amongst individuals who at present enjoy full liberty, and who need legalised protection. For whilst there is statutory provision for the care of the insane and the idiot, there is none for the mental weakling or the wastrel, whose unrestricted freedom is quite as harmful to the well-being of the community. These classes contribute largely to the multiplication of the unfit, and are themselves exposed to dangers and hardships by reason of their own unfitness. Unable to earn a livelihood they swell the ranks of pauperism, whilst their lack of mental and moral control leads to their contributing no small share to the records of crime, intemperance, and immorality. The Royal Commission did a great service in revealing the extent of the evil resulting from the lack of supervision over this large and increasing degenerate section. That the revelations have not hitherto engaged the attention of Parliament cannot surely be due to non-recognition of their importance, but rather to the absorption of political activities in other directions. It may be that the delay in dealing with the question has not been without advantage, since it has allowed time for the public to be fully enlightened by much able propagandism, so that few can now be wholly ignorant of the urgency of the problem, and the means of dealing with it. And since so to deal with it adequately must needs involve a large expenditure of public money, it is perhaps as well that the bearing of legislative interference on the promotion of the national health and efficiency should be thoroughly and widely realised.

As if in anticipation of early legislation on the subject there has opportunely been published the draft of a Bill styled "The Mental Defect Bill," which has been prepared on the lines of the report of the Royal Commission under the auspices of a highly influential and experienced committee. The Bill[1] consists of 259 clauses grouped under 14 headings, and is mainly framed on the Lunacy Act, 1890, of which the material parts are retained or redrafted, the term "mentally defective" replacing that of "lunatic," and "hospital" being substituted for "asylum." The arrangement of the clauses is decidedly better than obtains in the existing Act, and there are skilfully embodied in them many of the recommendations of the Royal Commission. There are many points in regard to which experience of the working of the Lunacy Act has shown the necessity for amendment, and these may have to be considered before a Bill replacing that Act is finally framed; but there can be no doubt as to the general scope and bearing of this draft. For it shows the possibility of dealing with every class of the mentally defective on the same lines as those of existing legislation for "persons of unsound mind." Those who need care and control by reason of mental incapacity of the simplest as well as of the gravest form will, under such a measure, be subjected to practically identical disabilities and restrictions, be detained and segregated under the same legal procedure, and be able to enjoy the same benefit in regard to the protection of their property. There must be some difference in detail, but in principle all mental defectives would be controlled by similar means. Should this principle be generally recognised one step would have been taken towards dispelling what is called the

[1] Copies of this Bill are to be obtained at P. S. King and Co., Smith-street, Westminster, or 296, Vauxhall Bridge-road, S.W. Price 6d.

"stigma" of insanity, and so removing the popular dread of certification. Although it would hardly be desirable at this juncture to enter into a minute discussion of the details of a "Bill" which is rather of the nature of a *ballon d'essai* than of a measure introduced into Parliament, it may yet be useful briefly to indicate some of its novel provisions, especially as regards our profession. For it may, we think, be taken for granted that whatever be the legislation ultimately proposed it must be more or less on the same lines as this draft if not of the same scope.

Following the recommendation of the Royal Commission, no new authority is to be set up, but the central body for the care and control of the feeble-minded is to be a Board of Control consisting of Commissioners, including the existing Commissioners, Masters, and Chancery Visitors, together with such additional Commissioners as may be necessary, the appointments being made by the Secretary of State. Those eligible shall be a certain proportion of legal and medical practitioners or others specially qualified from their knowledge and experience of the care of mental defectives, and at least one of the Commissioners must be a woman. There would also be Honorary Commissioners and eight Assistant District Commissioners, who would be medical men, and whose duties would be confined to the eight districts into which the country would be divided. It may be noted in passing that if the Bill introduced by the Lord Chancellor last session had been passed in its original form a step would have been taken towards the formation of such a Board of Control, by the amalgamation of the two existing lunacy boards. In the next place, each local authority (the county or borough council) will act through a statutory committee, the "Mental Defect Committee," which would take over the duties at present performed by the Visiting Committee of Asylums, and part of those of the Education Committee, and on this committee at least one woman would have a seat. It would be the duty of the local authority to appoint a whole-time medical officer (or, if need be, more than one) to assist in carrying out the provisions of the Act; and also to appoint certifying medical practitioners in districts within the area, subject to the approval of the Board of Control.

Amongst other new proposals which are very desirable is that of the provision by the local authority of receiving houses and reception wards for the temporary treatment of mentally defective persons, whose admission therein is subject to the discretion of the medical officer of the house or ward, and if admitted such persons will have to be visited by the medical officer of the local authority or by a certifying medical practitioner, on whom will devolve the duty of reporting on the mental state of the person. Apparently there would be no change in the existing procedure of reception orders on petition or of summary reception orders, except that in certain contingencies the local authority may call on their medical officer to act as petitioner. The regulations bearing on care and treatment would be unaltered, but fresh powers would be given to local authorities in respect of the discharge of a mentally defective person, "not being a person of unsound mind." The local authority will have to deal with the education of mentally defective children, the term "education" being held to include any manual, industrial, or other training, and the phrase "mentally defective child" being a child who is either an idiot, an imbecile, feeble-minded, or a moral imbecile. There are also clauses dealing with the guardianship and supervision of those who are under the age of 21. A register of all notified mentally defective persons is to be kept by the Board of Control, and the requirements as to visitation and inspection are to be much as now obtain for the insane, with the not unimportant modification that these duties in any instance may be made by a single Commissioner. The reintroduction of licensing of houses and institutions, which was abrogated by the Act of 1890, is obviously necessary, since the need for new establishments will be very great.

The foregoing forms but a small part of the provisions of this bulky measure, which has evidently been compiled with the careful intention to bring new legislation into harmony with old. It shows how this can be done without any departure from the spirit and intention of the existing lunacy law, and so far it merits approbation. It is of value, too, as consolidating and bringing to a focus the conclusions arrived at by a Royal Commission of exceptional strength after a thorough survey of the problem they were empowered to determine. It may be too much to expect that so great a step as is here foreshadowed can be taken by Parliament at once, but it shows the way in which the subject could be dealt with in its entirety. If it be only practicable to proceed by piecemeal legislation, whatever is done now should be done with the general scheme in view as the ultimate goal. Perhaps the one striking feature of the whole plan is that it would extend the range of legalised restriction of liberty of individuals, in the interest of themselves and of the rest of the community, to fully twice its present limit. And in the case of the congenitally feeble-minded this restriction must be life-long, and therefore will apparently involve for them a greater hardship than is now endured by many of the insane. All the more reason then that the conditions under which they would have to pass their lives should be made as pleasant and as free as is compatible with their segregation and protection. We may feel sure that humanitarian instincts may be trusted to find the best solution to this problem. And we are equally confident that under the new conditions that will soon prevail the medical profession would be willing and competent to undertake the very responsible duties devolving upon them.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—Hospitals in the County of London or within nine miles of Charing Cross desiring to participate in the grants made by this Fund for the year 1912 must make application before March 30th to the honorary secretaries, 7, Walbrook, E.C. Applications will also be considered from convalescent homes which are situated within the above boundaries or which, being situated outside, take a large proportion of patients from London. Applications will also be considered from sanatoriums for consumption which take patients from London or which are prepared to place beds at the disposal of the Fund for the use of patients from London hospitals.

Annotations.

"Ne quid nimis."

SENIOR HOSPITAL APPOINTMENTS AND DISPENSING.

OWING to local circumstances of a rather unusual kind the question of the senior hospital staff and dispensing has lately been revived at Portsmouth. Like several other large provincial hospitals the Royal Portsmouth Hospital has a rule prohibiting the honorary senior physicians and surgeons from dispensing or contracting in any way for the supply of medicines. As it happens, the neighbourhood of Portsmouth and Southsea is sharply divided so far as medical practice is concerned into two distinct parts—all the medical men south of a certain street refrain from dispensing and are eligible for senior staff posts, while all those practising north of this line dispense and are debarred from promotion to the senior honorary staff. The death of one of the senior physicians to the hospital recently created a vacancy which, had he been eligible, would naturally have been filled by the promotion of a much respected junior honorary physician. He, however, dispensed, and owing to the effect of the Insurance Act upon the transfer of such practices he had been unable to dispose of this part of his work; therefore his election to the senior staff was prevented by the rule in question. This was very generally felt to be a hard case, and the governors of the hospital decided, not without some discussion, to propose that the words which forbade dispensing should be struck out. At the annual meeting, however, the case for retaining this prohibition was ably presented by Mr. Henry Rundle, a valued member of the consulting staff, who supported his argument with the opinions of Sir Clifford Allbutt, Professor Howard Marsh, Dr. J. Mitchell Bruce, and Mr. D'Arcy Power. He urged the meeting not to alter the rule for all time, and so lower the standard of qualification required of the senior staff, but to empower the governors merely to suspend operation of the rule for a period, so that the present difficulty might be overcome without prejudice to the future. Mr. Rundle's views carried much weight, and his amendment was passed by a very large majority. The essential thing, of course, is to secure for the service of the hospital the most scientific representatives of medicine and surgery available in the community, and any regulation which aims at this should be treated with respect, and not cancelled without good cause being shown. The question whether the senior members of the visiting staff should be allowed to dispense is not often likely to become a very acute one, because in the nature of things the senior practitioners of a large town by the time they are eligible for such posts have already ceased to dispense, or are in a position to do so if they wish. It is obvious that in ordinary circumstances a medical man whose practice is so dependent upon the supply of medicines that he cannot afford to abandon dispensing would be unlikely to have sufficient time to devote to the honorary service of a hospital; but where special conditions arise, as at Portsmouth, it may be wise to relax a good rule to avoid injustice. It would have been unfortunate if a rule framed in the best interests of the hospital and of the community had been abolished because its operation in exceptional circumstances might give it the air of class legislation. Mr. Rundle showed that the position could not well arise again at Portsmouth for 15 years, since none of the present assistant honorary staff dispense. Such being the case his amendment offered a middle course which appealed to the good sense of the meeting, and will, we hope, satisfy all parties.

THE SURVIVAL OF ANCIENT PATHOLOGY AMONG THE LAITY.

THE history of medicine shows that many pathological theories, like most other subjects of human interest, after claiming attention for a shorter or longer time, pass ultimately into the limbo of the forgotten. As a rule, each new doctrine finds its earliest adherents within the boundaries of the profession, and spreads but slowly among the laity. By the time it is incorporated in the stock ideas of the common people, those who originally set it up have tested it, and have reason on their side if they find it wanting. The longer the doctrine maintains its hold over the intellectual centre, the more likely it is to reach the understanding of the people, and as a rule the more likely is it to be defensible, in some aspects at any rate, on scientific grounds. The ancient humoral pathology, which reigned supreme for 2000 years, and had ample opportunity to permeate all levels of society, incorporated in its imagining many isolated truths. Its main ideas are reflected time and again, as Mr. P. A. Robin [1] has pointed out, in the literature of the ages. Even at the present day our language still shows traces of this ancient pathology. For example, Hippocrates' notion of the four humours of the body survives in the expressions "choleric," "sanguine," "melancholic," and "phlegmatic"; while the words "good humour" and "ill-humour" spring from the same remote source, and the word "spleen" owes one of its special meanings to its rôle in the humoral pathology as the producer of black bile. It would be strange if in the daily talk of average men and women nothing now remained of beliefs that dominated the medical world for so many centuries, especially as very few people even among educated classes have any clear idea of what they mean by a "disease"; in the minds of most it has something of the concrete about it, which the "constitution" can throw off or eject. Thus, most people regard a cold as a something that can be sweated out through the pores of the skin, and the rash of a specific fever as "the disease coming to the surface"; without the rash the disease would "strike inwardly" or be "suppressed." Similarly, a skin affection is to them a "breaking out"—a term expressing something pent up within the system. When a farm hand, admitted to a hospital for a broken-down gumma, which under the iodides is healing rapidly, insists on leaving the hospital in consequence of his conviction that the disappearance of the discharge implies the driving of the disease inward again, he is merely giving expression to the beliefs of our not very remote professional ancestors. So late as the seventeenth century the enlightened Sydenham believed, with Hippocrates, that a disease passed through a stage of "coction," in which it was prepared for elimination, to a stage of "crisis," in which it was expelled. He speaks of "inflamed particles" falling on the pleura and lighting up pleurisy; of withdrawing "febrile matter" from the blood by purging. In ague, he says, "sensible morbid matter" accumulates between the attacks and is cleared off in the sweating stage of the next fit. He recognised "depurating" fevers—fevers which cleansed the fluids of the body—and he made a free use of bleeding in order to remove the particles of disease. This medical conception still hovers at the back of the minds of many, not only of the lower classes, showing itself in their narratives of "breakings-out" and "suppressed" diseases; the determination of the out-patient mother who will be no party to the direful act of stopping the discharge from her child's ear is an expression of belated wisdom, though so foolish. Popular notions of disease, when looked at from the historical standpoint, appears as the fruit of the seed

[1] Old Physiology in English Literature, by P. A. Robin.

scattered by our professional predecessors, all of whom helped in moulding the lay opinion of their day. When we have to listen to a nineteenth century exponent of sixteenth century pathology it behoves us to remember that, in spite of the brilliant advance of modern medical science, a large proportion of our fellows have not yet freed themselves from the pathological doctrines of the ancients which were instilled into them by our professional forebears.

THE FATE OF MEDICAL CASE-BOOKS.

A FEW weeks ago we chronicled the munificent bequest of over £100,000 for the foundation of local almshouses by the late Dr. Charles Alfred Lee, of Hull. Dr. Lee's will contains precise instructions for the carrying out of his wishes. Among other instances of his foresight and generosity is a direction to his executors to cancel all his medical book debts and to burn all his day-books, cash-books, ledgers, and so forth, kept in connexion with his practice. This instruction no doubt covers any medical note-books and case-histories which may have been kept by the deceased practitioner during his 63 years of professional life. If this was part of Dr. Lee's intention when he made his will we may suppose that he had in mind not only the pockets of his patients, but also their feelings and the sanctity of his relations with them. He may well have considered that it was part of a medical man's duty to have all such intimate records of his patients and their families destroyed at his death for fear, among other things, lest they should pass into undesirable hands. The possible fate of old case-books after their owner's death is, indeed, too seldom borne in mind by medical men. The hard-worked general practitioner, it is true, often has time for little more than a brief record even of unusual cases, but many consultants keep full notes of every private patient, and the disposal of such elaborate case-histories should not be left to the whim of an executor. The death of a popular physician, whose practice has for many years brought him into close touch with the secrets and the troubles of well-known people, may place in lay hands a shelf-full of case-books of the greatest interest and scientific value, which, if allowed to drift about, might cause infinite pain. In such instances clear directions for the destruction or the sealing-up for a number of years of all professional documents would relieve executors of an embarrassing responsibility.

THE NERVOUS COMPLICATIONS OF DIABETES.

Dr. R. T. Williamson, of Manchester, contributes to the *Festschrift* in honour of Professor Raphael Lépine, of Bordeaux, an interesting paper on those nervous complications of diabetes which are associated with changes in the peripheral spinal nerves and spinal cord. Such nervous symptoms occur in the course of many cases of diabetes mellitus, mainly, though by no means entirely, in the milder forms of diabetes of long standing. As a rule they are confined to the sensory side of the nervous mechanism, revealing themselves by pains, paræsthesiæ, or tenderness, loss of the tendo-Achillis reflexes, and loss of the sensation of vibration, or pallanæsthesia. Sometimes only one or other of these is present, sometimes all; occasionally additional symptoms develop, such as marked hyperalgesia, loss of knee-jerks, slight anæsthesia, and even paresis or paralysis of the leg muscles. Dr. Williamson found the Achillis jerks absent in 19 out of 50 consecutive cases of the disease. In a series of 100 cases, chiefly among hospital patients, the knee-jerks were both lost in 49, one lost and one present in six, both present in 45. The Achillis jerks are usually lost before the knee-jerks. Of 100 consecutive cases of diabetes the sensation of vibration in the lower extremities was absent in 18. Dr. Williamson quotes from Verneuil the interesting observation that in cases of fracture in diabetic patients the ends of the bone are remarkably insensitive. The pains of diabetes are commonly described as dull, aching, gnawing, or burning; they are practically never of a darting, stabbing, neuralgic type. Pains and loss of the tendon reflexes constitute the main indications of "diabetic neuritis," so-called. Associated with the pains are often cramps in the muscles and general hyperæsthesia of the limbs. Sometimes a degree of ataxia is present, in which case the symptoms form a clinical picture not unlike locomotor ataxia, distinguished as "pseudo-tabes." As a rule the arms escape, and psychical symptoms are never observed. Very occasionally perforating ulcers are seen in diabetic patients on the soles of the feet. It is a curious fact that the symptoms of diabetic neuritis are sometimes localised to the distribution of the anterior crural and obturator nerves of one or both sides. Dr. Williamson holds strongly that whenever neuritic symptoms are localised to the distribution of the lumbar plexus the urine should always be examined for sugar. There should be little difficulty in distinguishing diabetic neuritis from alcoholic neuritis. It seems, for instance, to be the case that in the former condition the arms and the legs are never affected together, whereas the converse holds good for alcoholic neuritis. Nor should it be difficult to separate diabetic neuritis from tabes. It is a good rule always to examine for sugar when there are severe pains in the legs, when the knee or Achillis jerks are absent, or when the patient suffers from sciatica, or perforating ulcer, or from symptoms of peripheral neuritis. As for the pathology of diabetic neuritis, there are usually changes in the peripheral nerves or in the spinal cord. As far as the former are concerned, the changes are such as are found in any neuritis, alcoholic, diphtheritic, or otherwise. In other cases, however, more especially where the tendon reflexes have been awanting, degenerative changes have been found in the posterior columns of the spinal cord, affecting mainly the posterior root fibres in their intramedullary course. Dr. Williamson has found that these changes commence directly the nerve fibres have penetrated the pia and are entering the cord. The degeneration in the posterior columns is secondary to this root degeneration. The diseased areas can be easily traced by Marchi's method. They are best seen in the lumbar and cervical regions. The possibility of the nervous symptoms being due in part, at least in some cases, to alcohol is worthy of consideration. It has been pointed out that peripheral neuritis is specially apt to occur when two poisons act simultaneously on the nervous system. Dr. Williamson recalls the fact that in the epidemic of peripheral neuritis in Manchester some years ago the quantity of arsenic in the beer consumed was by itself insufficient to have produced the symptoms, and so was the quantity of alcohol, but the combination of the two proved an adequate cause for the development of neuritis.

CULTIVATION OF THE LEPROSY BACILLUS.

IT is satisfactory to find that the most refractory organisms are gradually yielding to the seductions of the bacteriologist, and submitting to cultivation in the laboratory. For a long time failure attended all attempts to grow the bacillus of leprosy on artificial media, but recently several successful cultures have been recorded. One of the most notable of these was effected by Clegg,[1] who grew the organisms along with amœbæ and cholera vibrios. This method has recently been successfully applied by Hollmann[2] to the bacillus of

[1] Philippine Journal of Science, 1909, sec. B., vol. iv., p. 403.
[2] Public Health Reports, Washington, Jan. 19th, 1912, vol. xxvii., No. 3, p. 69.

rat leprosy, which has been supposed to be identical with the bacillus found in the human disease. This identification is, to some extent, supported by the susceptibility of the two organisms to the same mode of culture. Reinoculation of Hollmann's cultures into healthy rats did not, however, produce any visible lesions, though acid-fast bacilli were found after death in the tissues of the animals, and in view of the ubiquity of acid-fast organisms it is difficult to be sure of the identity of any grown in a mixed culture. If the bacillus of rat leprosy is really the B. lepræ, the interesting question arises as to the possibility of transmission of the disease to man by these rodents. So far no evidence of such transmission appears to exist, and it is difficult to imagine a condition of sufficiently close contact between man and rat to lead to infection with the causal agent of so chronic and slightly contagious an infection. An intermediary, such as the flea, is, of course, possible, and it is important to ascertain whether fleas can carry infection from rat to rat. In any case we are justified in feeling that light is beginning to dawn on the causation of leprosy and in anticipating further discoveries of importance in the immediate future.

CRUELTY TO POULTRY.

THE Society for the Prevention of Cruelty to Animals has lately prosecuted a railway company because some sheep and pigs were so overcrowded in trucks that three died and many were injured before they reached their destination. On such a charge, if proved, a private trader could easily be condemned, but it is a more difficult matter to prosecute so impersonal an organisation as a large company. In any case, there is undoubtedly much unnecessary cruelty practised in effecting the transport of living animals intended for human food. Some of this could be stopped through the Protection of Animals Act, but there are many cases which do not come within the scope of the law. According to the Act in question, birds are not animals. If a horse, a cow, a pig, a dog, or a cat is ill-treated the person responsible can be prosecuted, but that same person may ill-treat a fowl or a turkey without interference. The result is that living poultry are packed and distributed all over the country in a manner that is a disgrace to our humanity. Heavy and light birds, geese and chickens, are crowded together in the same crates. The basket or crate is often so badly constructed that when the birds it contains are thrown against the sides they may be badly injured. In many instances there are projecting nails or splinters that inflict desperate wounds, while weaker birds are often smothered by the heavier birds and many limbs are broken. Of course, there should be partitions in the crates so that the birds could be separated according to their size. Then on long journeys the birds should be taken out, fed, and watered. There is no justification for the suffering caused. A law of nature compels us to kill in order to live, but there is no necessity for cruelty. In some countries there are especially constructed railway wagons for carrying poultry. These are well aired, and the wood is smooth and flat so as to avoid injury to the birds, while there are troughs for water and food that can be replenished from the outside. A large proportion of the poultry that is tortured for want of proper means of transport comes from Ireland. Some of the dealers do take good care of the birds, but they are in the minority. These humane and conscientious men are consequently placed at a disadvantage when competing with less scrupulous and more callous dealers. It would be an act of justice as well as mercy if the Act for the Prevention of Cruelty to Animals were extended to include birds. This reform would prevent much unnecessary and wasteful suffering in the animal world. Birds which have been injured, frightened, and exhausted by a long painful journey are less suitable for human food. Big cattle after a long railway journey, though not injured and much better cared for during transit, are generally given some three days in which to recover before they are slaughtered. If this is not done the quality of the meat is impaired. Why should not similar care be taken of live poultry?

INTRACRANIAL CEREBRAL HÆMORRHAGE IN THE NEWBORN RELIEVED BY OPERATION.

INTRACRANIAL cerebral hæmorrhage in the newborn, if it does not kill the patient forthwith, is acknowledged to be one of the common causes of congenital spastic paraplegia or Little's disease. In an analysis of 74 necropsies on infants still-born or dying in the first few days of life, Archibald found subdural hæmorrhage in 32 and extradural hæmorrhage in 5. It was the probable cause of death in most of these cases. Sometimes, as Léri has shown, minute multiple hæmorrhages (cortical and otherwise) occur, and for cases of this description little can be done by way of active interference. In the first group, however, surgical treatment has been tried in a fair number with varying success. In the *Boston Medical and Surgical Journal* (Jan. 11th, 1912), Dr. Channing C. Simmons, surgeon to the Massachusetts General Hospital, reports two cases successfully operated on. It is probable that more cases are operated on than are reported, for Dr. Simmons can find a record of only 14, with four recoveries—the latter cases operated on by Cushing, of Baltimore, and published by him. This seems a small proportion of successful cases, for which various causes may be advanced by way of explanation. The diagnosis ought to present no difficulties, at least in the majority of cases. As a rule, there is a history of prolonged and difficult labour, usually in a primipara. A few hours after birth the infant becomes stupid, has attacks of vomiting, may be unable to take the breast, and frequently begins to show symptoms of cortical irritation, with convulsive involuntary movements and possibly some stiffness of the limbs. In Dr. Simmons's first case the fontanelles were tense and bulging, and did not pulsate, while lumbar puncture was followed by the escape of blood-stained cerebro-spinal fluid. In this instance the technique was as follows. Wrapped in blankets, and surrounded by hot water bottles, the infant was given the merest whiff of ether, and then a short curved incision was made over the anterior fontanelle, which was bulging and bluish in colour. The coronal suture and underlying dura were then incised by a cut, about ¾ in. long, 1½ in. to the right of the median line. An ounce of dark blood at once escaped. The same procedure was carried out on the other side, when more dark blood came away. Thereafter the fontanelles became soft and commenced to pulsate normally. The infant made a good recovery, and 13 months later bade fair to develop into a normal, healthy child. It appears that in cases of this description the hæmorrhage usually occurs from one of the veins running upwards over the cortex to empty into the superior longitudinal sinus in the neighbourhood of the anterior fontanelle. If there is overlapping of the bones in a difficult labour one or other of these veins may be torn, when the blood will be extravasated, usually more or less over the motor area, and will gradually diffuse itself over the entire hemispheres. Should the motor area not be involved there may be no localising symptoms, but a history of difficult labour, and symptoms of cerebral compression in the shape of accelerated pulse, bulging fontanelles, shallow respiration, dilated pupils, and inability to take the breast ought to be a sufficient guide to the condition. Lumbar puncture is of great value as an aid to

diagnosis. Dr. Simmons attributes his good results to the simplicity of his procedure, and does not think an osteoplastic operation in the parietal region is called for unless the hæmorrhage is very large and has extended to the tentorium. It may be necessary to operate more than once, especially since organisation of an incompletely removed clot may give rise to irritative symptoms later in life. If the infant is moribund or in a critical condition Dr. Simmons's procedure should be tried without delay, and if it prove unsatisfactory an osteoplastic operation might follow. With the good results obtained by Cushing and by Dr. Simmons in view, it is incumbent on the obstetrician to recognise the condition and to seek surgical aid at the earliest possible moment, for otherwise there can be, in all probability, only one or other unfortunate ending—either the infant dies or he suffers from infantile hemiplegia, Jacksonian epilepsy, or spastic paraplegia in later years.

THE PHYSICIAN AND THE PATHOLOGIST ON HEART FAILURE.

AN interesting debate by the Chelsea Clinical Society on Disorders of the Circulatory System was opened on March 12th with a paper by Sir T. Clifford Allbutt, entitled "The Physician and the Pathologist on Heart Failure." Professor Allbutt showed how the two aspects of cardiac failure, the clinical and the pathological, are lacking at present in correlation, and he suggested that if the workers in these fields would coöperate more the complications and uncertainties of the subject might be cleared up. He dwelt on the misleading nature of various physical signs in heart failure unassociated with valvular disease; nevertheless, persistent alteration of pulse-rate and the phenomenon of pulsus alternans are, in his view, each very suggestive of myocardial damage, although neither is an absolute criterion. Professor Allbutt in particular surveyed the problem of sudden death without previous signs of illness in the man who does not suspect that he is ill. His interesting and thoughtful paper was followed by remarks from Sir Lauder Brunton and Dr. Samuel West, who both inclined to the view that the explanation of such cases is a toxic one, and the debate was continued by Dr. Hector Mackenzie, Dr. C. C. Gibbes, and others. We hope to publish an account of the discussion in our next issue. On March 19th the clinical debate will be continued at the Physiological Laboratory of the University of London, Imperial Institute, S.W., when Professor Wilhelm Einthoven, M.D., of Leyden, will read a paper on "The Various Forms of the Human Electrocardiogram and their Significance." The meeting is open to the whole of the medical profession.

THE DEVELOPMENT OF THE PARASITE OF INDIAN KALA-AZAR IN CIMEX ROTUNDATUS AND CIMEX LECTULARIUS.

Captain W. S. Patton, I.M.S., who has been deputed by the Government of Madras to carry out further investigations into the etiology of kala-azar, has been able by feeding Cimex rotundatus and Cimex lectularius on a case of kala-azar, in whose blood there were a large number of parasites, to discover its complete development. This discovery was foreshadowed in a telegram published in these columns on Feb. 17th last. The parasite has been followed from its unchanged state in a leucocyte through the flagellate stage up to the rounding-up of the parasite into its post-flagellate form, as was predicted in 1907.[1] The further important discovery was made that if bugs which already contained the developmental forms were again fed on another case of kala-azar in a monkey (Macacus sinicus) the flagellating forms were completely destroyed within 24 hours; whereas if the bugs were not fed again the development goes on and is completed by the tenth, eleventh, and twelfth day after the single feed. This discovery at once explains why in all the previous experiments he was never able to obtain massive infection of the bug or to get its complete life-history, for the simple reason that the bugs were then repeatedly fed on the case and not kept long enough after their last feed.[2] It further suggests an explanation why the disease does not readily spread outside the endemic area, as this material obstacle prevents many bugs from becoming infective. These recent observations clearly demonstrate that in Cimex lectularius, the European bed-bug, the parasite goes through its complete development as readily as in Cimex rotundatus, and that by the seventh, eighth, and ninth day this bug swarms with flagellate stages in masses of rosettes. It is very probable then that the parasite of infantile kala-azar known now to occur along the Mediterranean littoral also undergoes its development in Cimex lectularius. Captain Patton has further found that in Conorrhinus rubrofasciatus, the bug suspected by Donovan, which was bred from the eggs and fed on the case, the parasite degenerates and never flagellates; this finally proves that this bug has nothing whatever to do with the transmission of kala-azar. All the bugs used in these experiments were bred in the laboratory and had their first feed on the case. Cimex lectularius was obtained from the slums of London, and like Cimex rotundatus it never contains a natural flagellate. A memoir describing the observations particularly of the post-flagellate stage will shortly be published.

[1] Vide Annual Report, King Institute, 1907.

THE LESION CAUSED BY JUDICIAL HANGING.

IT is an old saying that there are more ways of killing than by hanging; but perhaps it is not so well known that there are many different ways of killing by hanging. When a criminal is hanged he dies a practically instantaneous death, but his death may be brought about in a strange variety of ways. From the medico-legal point of view more attention has been paid to the results produced by the methods of the suicide than to the actual state of affairs which brings about the death of a man executed in the interests of justice. And yet, since hanging is the accepted English method of despatching the criminal, any evidence of the processes by which death is brought about cannot be unimportant. It must be admitted at once that the term "hanging" is not at all a good one to express the mode of death in a modern execution. Hanging suggests the passive suspension at the end of a rope, and seems to connote a throttling of the victim by the drawing tight of the noose. Suicides do literally hang themselves, and in olden days men were hanged when executed, death from apoplexy or asphyxia being caused by the constriction of the neck. But something more than this comes into play in a modern execution, for the jerk of the drop, and not the running taut of the noose, is the factor which in most cases brings about an instantaneous death. The criminal is not throttled to death, but a sudden jerk imparted to the base of his skull kills him with a surprising suddenness. Exactly what this jerk does depends on many things, such as the length of the drop and the position of the knot, and totally different results are found in different cases. At times no injury to the bones of the neck can be found after death, and in these cases it is probable that a general stretching of the ligaments has permitted a fatal injury to the cord without producing any bony lesion; it is even possible that some of the more subtle causes of death, which are seen in the suicide,

[2] Vide Memoirs Nos. 27 and 31.

come into play. It has been thought that the odontoid process became torn from its ligaments, and so crushed the cord; it has even been said that some executioners could produce this result at will by giving a rotary motion to the falling body. Still, although this is a common belief concerning hanging (and certainly one case of damage to the odontoid is recorded), it is probably a somewhat rare accident for death to be brought about by injury of the cord due to a fractured, or liberated, odontoid process. Almost any degree of injury to the cervical region of the spine may be produced. The third cervical vertebra is the one most commonly fractured, but the extent of injury may range from a mere tearing of the ligaments, or a slight fracture of the bone, up to a complete severance of all the tissues of the neck. Complete decapitation has been produced by a drop of no more than 9 feet. Apart altogether from this lesion of the cervical vertebræ a strange injury to the skull has been described, and it seems certain that an executed man may die as the result of extensive cranial injuries, whilst his cervical vertebræ remain intact. The anatomists engaged in the archæological survey of Nubia had the opportunity of examining the bodies of over a hundred men, all of whom had been executed in Roman times, and some of whom still carried round their necks the ropes with which they were hanged. These men showed no lesion of their cervical vertebræ, but the sutures of their skulls were torn open in such a manner as to lead Dr. F. Wood Jones to suppose that the knot, catching on the angle of the jaw, had tended to pull one temporal bone and the facial part of the skull bodily upwards from the occipital and the base of the skull. These lesions were remarkably constant in the Nubian series, although the skulls of several men known to have been hanged, which are lodged in various museums, did not show any such injury. Quite recently the demolition of the old buildings in Jail-square, Glasgow, has provided Dr. G. H. Edington with the opportunity of examining and describing[1] the skull of Dr. Pritchard who was hanged for his crimes on July 28th, 1865, before a crowd of 100,000 onlookers. The circumstances of Pritchard's hanging are fairly well known: Calcraft, the advocate of the Scottish "short-drop" method, was the executioner, and a fall of between three and four feet was allowed. This drop does not appear to have been sufficient, for it "was only after Calcraft went below and pulled the legs that the body was brought to stillness." The degree of force used by Calcraft is, of course, a matter for conjecture, but the interest of it lies in the fact that the lesion produced by this added pull is exactly similar to that found in the skulls of the Nubian natives executed by the Romans. Pritchard had his right temporal bone disrupted from the skull, and, although there is no external evidence on the point, it is probable that the knot of the rope was on the right side of the neck. Different executioners place the knot in different positions, and it seems certain that with the knot under the chin a lesion of the cervical vertebræ is likely to be produced; while with the knot under one ear a cranial lesion may well result, and such a lesion is but a very exaggerated form of the boxer's "knock-out blow." It is not at all impossible that this exaggerated knock-out blow may prove to be *the* cause of death in modern judicial hangings in which the knot is placed under the ear.

WE are glad to announce that the Lord Mayor of London, Sir Thomas Crosby, M.D., after an investigation made by himself personally, has reported to the Council of the Metropolitan Hospital Sunday Fund that the amount expended by St. George's Hospital upon the bacteriological and pathological departments was not excessive, and was properly taken from the general funds of the charity, being for the direct treatment of the patients. Presumably the usual grant to St. George's Hospital from the Fund will be forthcoming.

THE relatives of the late Lord Lister wish through us to offer their sincere thanks for the many letters and messages of sympathy which they have received from public bodies and from private individuals in this country and abroad, and to express their appreciation of the honour which has thus been rendered to his memory. They make this acknowledgment, fearing that some of these messages may inadvertently remain without particular answers.

Lord Esher has announced to the Vice-Chancellor of the University of Cambridge that an anonymous benefactor has placed in his hands £30,000 for the endowment of a professorship at Cambridge in connexion with the experimental study of heredity and of development by descent. The donor stipulates that the new chair shall be called "the Balfour Professorship of Genetics" in honour of Francis Balfour, and that the first appointment shall be made jointly by the Prime Minister and Mr. Arthur Balfour.

Dr. H. R. D. Spitta, assistant bacteriologist to St. George's Hospital, has made a report, at the request of the Postmaster-General, upon the possibility of the communication of tuberculosis through the use of telephones, and finds the danger to be non-existent.

ON the occasion of the opening of the University of Hong-Kong on March 11th, the King signified his intention of conferring the honour of knighthood upon Dr. Ho Kai, C.M.G., who has taken a prominent part in the movement for the establishment of the University.

THE Lumleian lectures on "Some Moot Points in the Pathology and Clinical History of Pneumonia," which were to be delivered by Dr. Percy Kidd on March 21st, 26th, and 28th, before the Royal College of Physicians of London, are unavoidably postponed until May 30th and June 4th and 6th.

WE regret to announce the death, on March 12th, of Sir Richard Brayn, Home Office Expert in Lunacy and formerly medical superintendent of Broadmoor Asylum.

ASSOCIATION OF CERTIFICATED DISPENSERS.—The sixth annual meeting of this association was held at the Apothecaries' Hall, Blackfriars, London, E.C., on March 7th, Mr. Montagu Smith, Lewisham Infirmary, presiding over the largest gathering that has yet assembled for the annual convention. The annual report showed a steady increase in the membership, large numbers having joined for protection against the unsettling tendencies of the National Insurance Act. The constant care of the committee and honorary secretary (Mr. A. Howell, Dalton Dispensary) had been to see that the interests, rights, and privileges of the members were secured in the Act. Every member of the House of Commons had been circularised. Deputations had been received by influential members of the Government, resulting in a special clause being added to the dispensing clauses for the benefit of holders of the Hall certificate. A petition had been forwarded to the Privy Council with reference to powers given to the Pharmaceutical Society under Section 4, Sub-Clause B, of the Poisons and Pharmacy Act, 1908, and a Bill proposed by the Society of Apothecaries with the object of bringing the certified dispenser into line with modern requirements will be submitted to Parliament at an early date.

[1] Glasgow Medical Journal, February, 1912.

ANNUAL REPORT OF THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.[1]

COMPARATIVELY slight acquaintance with the recent progress of preventive medicine will serve to correct the erroneous impression that this science is exclusively concerned with the study of infectious disease. Nevertheless, the history of past epidemics conclusively shows that very much of the suffering and loss of health, as well as of the poverty and distress endured by the poor of this country, has been caused by the ravages of one or other of these pestilences. Argument is not needed to show that it is by investigation of the causes of these conditions, by which means alone the best methods for their suppression can be discovered, that the study of this particular branch of preventive science is likely to prove serviceable to the State.

These remarks are suggested by the perusal of Part II. of Mr. John Burns's recently issued presidential report, the first part of which we have already reviewed.[2]

Some Historical Remarks.

Before commenting on the volume before us we may usefully observe that under the Act of 1871 the Local Government Board first became responsible for the discharge of the few sanitary functions which had previously been performed by the Privy Council Office, for which purpose Sir John (then Mr.) Simon was transferred to the Board from the staff of the Privy Council office, under the title of principal medical officer. In the course of the last 40 years many other administrative duties have been allotted to the Board, which has, therefore, become the controlling State authority for the public health service of the country.

Not until many years after the establishment of civil registration in 1837 was serious attempt anywhere made to ascertain the actual amount of damage done by infectious disease in this country beyond what could be gathered inferentially from the mortality caused thereby. In the course of the second half of last century certain of the more enlightened municipalities obtained powers under local Acts for the compulsory reporting of such diseases, although the information so obtained was restricted to local purposes. Nothing of the nature of interchange of this information among protected towns was attempted until early in the "eighties," when a provincial medical officer of health started the experiment of collecting returns of infectious sickness from notification towns and distributing weekly lists of the former among the collaborating authorities. The success of this experiment having been established, the Local Government Board was eventually persuaded to undertake the publication of the returns, which were daily becoming more valuable as the policy of protection became more general among the municipal authorities. Since the passing of the Infectious Diseases Notification (Extension) Act, which made notification generally compulsory, the registration of infectious sickness has become gradually more complete, and for several years past the tabulation and circulation of the returns have been carried out periodically by the Local Government Board, as all who have read our columns regularly know.

Case Mortality of Infectious Diseases.

In the supplement to this report, already noticed in THE LANCET of Nov. 25th, 1911, Dr. Newsholme dealt with notification from the medical standpoint; here the President treats of it mainly from an administrative aspect. Attempts are sometimes made to ascertain the "fatality" or case mortality of infectious attacks by comparing the registered deaths with the reported cases in a given area; but in other than exceptional circumstances this practice may lead to erroneous conclusions. By comparing the cases and deaths from particular diseases in the country as a whole the danger of error is of course reduced; and a table appears in this report showing the ratio of deaths to notified attacks in the year 1910. From this it appears that out of nearly 72,000 notified cases of scarlet fever in England and Wales only 2·3 per cent. died. Among nearly 7000 cases of enteric fever the fatality was 17·8 per cent., whilst among 25,000 cases of diphtheria it was 10 2 per cent. The sanitary authorities both in London and in the provinces are now empowered to distribute diphtheria antitoxin gratuitously for the treatment of their poorer inhabitants, and, whether or not this has been helpful, it is satisfactory reading that ever since the year 1906 diphtheria in this country has steadily declined.

Pulmonary Tuberculosis.

The temporary powers granted to four large towns for including tuberculous phthisis among notifiable diseases expired in 1910. Mr. Burns now expresses the opinion that "the addition of phthisis to the list of diseases notifiable under the general Act carries with it certain disabilities to persons suffering from the disease which should not be attached to all persons suffering from phthisis." Nevertheless, in view of the fact that the principal disabilities have been removed, the Board has extended the operation of these powers in the cases referred to for a further period of ten years. By the Local Government Order of 1908 tuberculosis was made compulsorily notifiable in all Poor-law institutions, and in 1910 the system was extended to patients in hospitals and dispensaries. In November, 1911, a further extension was made so as to secure the general notification of phthisis. In more than 280 districts a system of voluntary notification of tuberculosis is in operation, and that system is rapidly spreading, perhaps in connexion with the tuberculosis regulations of 1908 above referred to. For the accommodation of phthisical patients some authorities make provision in sanatoriums. Certain dispensaries also render useful aid by undertaking the diagnosis of disease and the selection of cases for sanatorium treatment. Moreover, the Board is disposed to sanction the provision by local authorities of open-air shelters for the care and treatment of sufferers from this disease. The appearance of the section in the recent National Insurance Act may be thus accounted for.

Exotic Disease.

Under the head of Exotic Disease it is stated that the Local Government Board has continued to give advice and information concerning questions of infectious diseases in the colonies and in foreign countries. Pneumonic plague is reported to have occurred in four instances during September, 1910, in East Suffolk, the circumstances of which were investigated by the late Dr. Bulstrode.[3] With these exceptions no suspected cases of human plague occurred during the year. A report has recently been issued by the Board containing an account of the investigations undertaken in connexion with the plague epizootic. These investigations are still proceeding. Asiatic cholera prevailed extensively during the year 1910 in parts of Russia, and the riparian sanitary authorities trading with Russia were warned to be on their guard against importation of infection into their districts by vessels coming from possibly infected places. Fortunately, no cases of the disease are known to have occurred in this country during the year.

Order relating to Medical Officers of Health.

In the present volume certain important changes are foreshadowed in public health procedure which, in the aggregate, amount to a new departure. Considerations of space compel us to limit our review to changes having definite interest for our profession. The Board has issued a new Order, which came into force at the beginning of 1911, and which was accompanied by a memorandum specifying, *inter alia*, the particulars in which the duties of medical officers of health are affected by the Order. Whilst recognising the value of the work of many health officers engaged in private practice, the Board is of opinion that the holding of such appointments by practising medical men is now undesirable. The President suggests the expedient of combining several small districts under the care of a highly qualified medical man who should be debarred from private practice, as are the county medical officers recently appointed, but who may advantageously hold such an appointment as that of education medical officer, isolation hospital superintendent, certifying factory surgeon, police surgeon, or public vaccinator.

In regard to tenure of office by medical officers of health

[1] Fortieth Annual Report of the Local Government Board, 1910–11, Part II. Wyman and Sons. Price 1s. 10d.

[2] THE LANCET, March 2nd, 1912, p. 601.

[3] THE LANCET, Sept. 2nd, 1911, p. 697.

the Order makes certain alterations which, in some respects, appear to be improvements. In addition to the duties prescribed by the Board's Order of 1891, every medical officer of health is now required to despatch weekly to the Local Government Board, and to the medical officer of the county, a return of the cases of infectious disease notified in his district during the previous week. From these returns a statement is compiled at Whitehall, which is circulated to every medical officer of health in England and Wales, and which shows the number of infectious cases notified in each district during the preceding week. This change is associated with, and is made practicable by, a corresponding change in the form in which the Registrar-General will present the vital statistics of the kingdom from the year 1911 onwards. In our issue of Jan. 13th, 1912, p. 106, we referred to this salutary rearrangement, which involves the substitution of sanitary for Poor-law districts, so that the data collected by the local authorities will in future correspond nearly to those published by the Registrar-General.

Milk-supply.

Cow's milk is still very frequently found to be the medium of dissemination of enteric fever and other infectious diseases; and for this reason the arrangements locally in vogue for its distribution demand the constant vigilance of sanitary authorities and their officers. In England and Wales there are still 144 sanitary authorities that have not adopted the Board's regulations for securing the purity of the milk-supply. The amount of adulteration detected in milk samples analysed during the year is given in a table, and varies considerably in different districts. Of the total of 47,895 samples examined 11·1 per cent. were found to be adulterated. The favourite substance used for the preservation of milk and cream appears to be boric acid. More than 160 local authorities have already made arrangements for the veterinary inspection of milch cows in their districts, and many other authorities have obtained power under local Acts to stop the supply in their districts of milk from a dairy outside their district in which there has been detected a cow with tuberculous disease of the udder. Having regard to the latest pronouncement of the Royal Commission on Tuberculosis it is of the first importance that similar powers should be conferred by general legislation on all sanitary authorities, who should be held responsible for the due enforcement of those powers.

Water-supply.

The maintenance of the public health so greatly depends on the purity of the water-supply that its constant supervision by the medical officer of health is made a special duty under the Board's recent Order. Thus, he is required to report "as to the sufficiency and quality of the water-supply of his district and of its several parts; and in areas where the supply is from waterworks, as to whether the supply is constant or intermittent." Moreover, he is required to furnish a report as to the pollution of rivers and streams in his district. In view of the fact that many river waters are liable to serious pollution, especially after heavy rain, the latter requirement is vitally important. In the course of the year the Board corresponded with several local authorities in consequence of complaints of defective water-supplies, insisting, in certain cases, on the removal of dangerous conditions.

Inspection of Meat.

In connexion with the supervision of the foreign meat-supply in the interests of the public health at home, the Board's attention was drawn during the year to the presence of a parasitic worm in the frozen quarters of meat arriving here from Australia, the resulting pathological condition being known as onchocerciasis.[4] In order to deal effectively with onchocerciasis in Australia the Commonwealth Government has made satisfactory arrangements for inspection of meat before export to this country. Chinese pork is now imported here in increasing amount; large consignments of Chinese pigs imported at Liverpool were examined during the year, and were found to comply with the official regulations, and as regards the Chinese farms in which the pigs are reared, Dr. R. A. Farrar reports, as the result of personal inspection, that their condition is generally satisfactory. The preservative treatment of imported meat by means of formaldehyde was made the subject of investigation during the year. The question of the suitability of this chemical for preservative purposes is dealt with in a report issued by the Board in 1909.[5]

Canal Boats.

Only a few years ago the influence of the canal-boat population as disseminators of infectious disease was generally considered dangerous to the communities dwelling on the canal banks. But in recent years the canal traffic has been steadily declining, the number of inhabited boats in use having consequently decreased. The dwellers in these boats are kept under better supervision than formerly, and a recent report speaks appreciatively of the coöperation for this purpose of the sanitary authorities concerned. Nevertheless, in some places canal-boat inspection is still perfunctory, the boats being simply observed from the canal banks or the numbers copied from the entries of previous years. Only 26 cases of infectious disease have been reported on board the 9121 boats used as dwellings during the year—viz., 8 of diphtheria, 5 of scarlet fever, 3 of erysipelas, 9 of enteric fever, and 1 of puerperal fever.

[4] THE LANCET, Feb. 4th, 1911, p. 317.

[5] Foods Report, No. 9, by Dr. Buchanan and Dr. Schryver.

THE RADIO-ACTIVE PROPERTIES OF THE WATERS OF BATH.

IT was suggested in an article in THE LANCET of Jan. 30th, 1904, that the fact that the Bath waters were found to be radio-active might lead to a more satisfactory explanation of the favourable action of natural mineral waters in hydrotherapeutic practice, and further inquiry has shown that the suggestion was a sound one. The presence, at all events, of salts which are of common occurrence, such, for example, as the sulphates and carbonates of calcium and sodium and chloride of sodium in small quantities, can hardly be referred to as accounting for the reputation of many natural waters in the treatment of disease.

At a meeting held in the Grand Pump Room at Bath on March 11th Sir William Ramsay gave an interesting and lucid account of his recent investigations into the characteristics of Bath waters before an audience composed chiefly of local medical men, with the Mayor, Mr. Alderman T. Forder Plowman, J.P., in the chair, supported by the city councillors. Referring to the analyses of the Bath waters made in 1899 in THE LANCET Laboratory, Sir William Ramsay said that there are undoubtedly mineral waters which owe their curative power to what may be termed ordinary chemical ingredients. Such were, for instance, sulphur waters, ferruginous waters, arsenical waters, and possibly lithium waters; but the recorded analyses of the Bath waters show, in the main, merely ordinary constituents, most of which are present in many drinking waters. "Sulphates of calcium, of sodium, of potassium, carbonates of calcium and magnesium, are all common substances, and the only unusual constituents of Bath waters, so far as the analysis made at THE LANCET Laboratory shows, are small quantities of strontium, of lithium, and a trace of bromine." The fact, however, that many mineral waters all over Europe have for ages been used for curative purposes, combined with our present knowledge that such waters, while not remarkable in "chemical" composition all agree in yielding helium, the product of decay of radium, makes it of particular interest to examine these waters for niton, the radium emanation, as well as for radium itself. Investigation, he continued, showed that the Bath waters are relatively rich in niton, showing an effect equal to the activity of 1·73 milligrammes of radium in a million litres. The gases evolved, moreover, contain also a relatively enormous amount of neon.

It is quite clear from these experiments that the Bath waters must possess marked radio-active properties, and a very simple observation, only recently interpreted rightly, in our opinion confirms this view. For a very long time it has been noticed that in the drinking glasses in which the Bath mineral waters have been served a uniform discolouration of the glass sooner or later takes place. In fact, when the water is left in contact with the glass for merely a few weeks the discolouration is very marked, the vessel becoming of a greenish-yellow hue. This was thought to be a deposit of iron on the glass, but it is now

shown to be due to the action of radio-active substances, just as some windows facing to the south assume an amethyst tint by the action of the rays of the sun. In the former case the greenish-yellow colour is probably due to some separation of lead, while in the latter the amethyst tint is due to traces of manganese in the glass.

Sir William Ramsay further pointed out that in conjunction with Dr. A. C. Stevenson at University College, he had conducted experiments in which mice were fed with bread and cheese soaked in a solution of niton and in which kittens were injected with a similar solution, as well as fed with it. In this way it was shown that the niton is got rid of chiefly by the lungs, and that in about three hours. After 12 hours all traces have disappeared. It may be that when a patient takes a bath the skin absorbs some niton; and some undoubtedly enters the lungs, for it is continually being given off from the surface of the hot water. Assuming this to be the case, he asked whether there is any means of increasing the dose taken by each of these methods of absorption. Skin absorption could be increased by placing the patient in the electric bath, connecting him with the negative pole of a battery and placing the positive electrode in the water. Since niton in disintegrating is continuously discharging electrons, or, in the older phraseology, losing negative electricity and becoming positively charged, the emanation would be attracted by a negatively charged body, and the niton would thus rapidly reach the skin. It would most likely, indeed, enter the system by ionisation. Experiments on these lines would require to be made with caution, but it is not probable that a dangerous dose would accrue when the waters of Bath were employed, since the amount of niton in an ordinary bath-full of water would be small. If desirable, Sir William Ramsay suggested, much larger doses of niton could be administered by using the gases together with spray directly against the skin, and it is conceivable that such an administration might prove efficacious in the treatment of local rheumatism. Care would have to be exercised in using this mixture as a spray in breathing, as absorption by the lungs would no doubt be very rapid.

At the termination of the address, which was followed with the greatest interest, a vote of thanks to Sir William Ramsay was proposed by Alderman C. Bryan Oliver, J.P., chairman of the Hot Mineral Baths Committee, who said that Sir William Ramsay had undertaken the investigation voluntarily and purely from a scientific point of view. Dr. R. J. H. Scott seconded the proposal, which was supported by Sir James Mackenzie Davidson, who referred to researches which had shown that treatment by radio-active mineral waters appeared to diminish uric acid production and had been used with distinct relief in rheumatic cases. He regarded, however, the whole question as being in the melting-pot, further investigations being needed if the method was to escape the reproach of empiricism.

We understand that the results of Sir William Ramsay's investigation are considered by the members of the corporation to be of such far-reaching importance as to justify them in making fresh financial proposals in order to develop the facilities for treatment by the thermal waters of Bath in the direction indicated.

PRESENTATION TO MR. F. T. PAUL.—A dinner will take place at the Exchange Hotel, Liverpool, on Wednesday, March 27th, at which it has been arranged to present to Mr. F. T. Paul his portrait, painted by Mr. Hall Neale. This has been subscribed for by Mr. Paul's friends and colleagues on his retirement from the active surgical staff of the Royal Infirmary. Those desirous of being present at the dinner are requested to communicate with one of the honorary secretaries—Mr. T. C. Litler Jones, 1, Abercromby-square, and Dr. Hubert Armstrong, 7, Rodney-street, Liverpool.

MEDICAL MAN FINED IN AN X RAY CASE.—A Bavarian practitioner has been fined £4 for causing bodily damage to a patient whom he was treating by means of Roentgen rays. It seems that he left the room for a few moments, previously enjoining the woman to lie quite still and not to move. Disobeying him, however, she shifted her position and received slight burns on the tip of the nose, the chin, and the chest. The court decided that the medical man was to blame for having absented himself without turning off the current.

MEDICAL AND SANITARY ADMINISTRATION IN THE GERMAN COLONIES DURING 1909-1910.[1]

THE annual medical reports upon the German colonies increase in interest and importance, while the amount of material comprised in them grows larger year by year. The report for the fiscal year beginning April 1st, 1909, and ending March 31st, 1910, has now been issued and contains twice as much printed matter as that issued four years ago. It is regrettable that the report should be so belated, though valuable lessons may be drawn from it none the less.

Germany's possessions outside Europe are divided into two groups—(1) those situated in Africa and (2) those in Oceania; the former include the colonies of German East Africa, the Cameroons, Togoland, and German South-West Africa, while the second group consists of German New Guinea, the Caroline Islands, the Marshall Islands, the Marianne or Ladrone Islands, and Samoa. A medical report on each of these colonies is included in the volume for 1909–10, with the exception of South-West Africa, as to which, for some unexplained reason, no report is given on the present occasion.

German East Africa.

The most important of Germany's extra-European possessions is the colony of East Africa, which has an estimated population of 7½ millions, the report upon it filling 246 pages out of the total 649 comprised in the present annual volume. The details contained in it may therefore be taken as a sample of the other reports, which, however, are naturally not quite as full of detail. The medical staff employed in East Africa is about 100, but even this number was reduced by a fifth during the year owing to home leave and other causes; moreover, the routine medical work was further interfered with by some members of the staff being detailed for special duty in connexion with measures directed against prevalent diseases such as small-pox, plague, malaria, ankylostomiasis, and sleeping sickness.

Vaccination and Small-pox.

The value of vaccination is now recognised by the natives of East Africa, who gladly accept the protection offered by it. Small-pox was prevalent during the year, particularly in the proximity of the new railway line now in process of construction. The cases officially reported numbered 860, and of these 234 died, giving a case-mortality of 27·2 per cent. It is probable that other cases were not reported, especially in localities where no medical officer or official was stationed. Nearly 900,000 vaccinations were performed during the year, about 81,000 of which were revaccinations, the successful results being about 73 per cent. of the whole.

Hitherto vaccine lymph has been obtained from Hamburg, and although this, owing to certain precautions taken during the voyage, was found quite active on its arrival, it rapidly deteriorated during transit into the interior. The plan now followed is to vaccinate calves with the Hamburg lymph as soon as it reaches the Port of Daressalam, the fresh calf lymph thus obtained being dispatched up country to the various stations, where again other calves are inoculated with the Daressalam lymph, and from these latter calves a supply is produced for vaccination of the natives of each district. In this way some 13 lymph producing stations in addition to that at Daressalam are now able to afford a copious supply of fresh and active lymph at a comparatively small cost. It is well known that local strains of vaccine lymph tend to lose their virulence in time; in order, therefore, to start a new strain calves at two stations (and also a sheep) were successfully inoculated with human variolous matter. At one station where goats had similarly been inoculated it was found, however, that calves could not be successfully vaccinated from them. Question also arose as to the identity of African and European small-pox, and whether vaccination by European lymph conferred protection against African small-pox or *vice versâ*. After due investigation by members of the staff it was decided that the disease, as it appears in Europe

[1] Medizinal-Berichte über die Deutschen Schutzgebiete, für das Jahr 1909–10 (Medical Reports upon the German Colonies for the year 1909–10), edited by the Imperial Colonial Office. Published by Ernst Siegfried Mittler und Sohn, Berlin. 1911. Pp. 649, with 45 illustrations in the text and 13 reproduced photographs. Price 11 marks bound, and 10 marks unbound.

and Africa, is identical, and that vaccination with African lymph conferred protection in either case. It is worth mention that vaccine lymph is purchased from the German Institute at Daressalam by the British authorities at Zanzibar for use in that territory.

Plague.

Though plague was prevalent in the previous year at Daressalam, it did not recur during 1909–10; nevertheless, measures were continued with a view to prevent its spread. Over 28,000 rats were destroyed, and of these 10,192 were examined in the laboratory without any infected animal being found. The experiment was tried of keeping domestic cats, but the native cat takes no trouble to hunt for rats, nor was the substitution of Egyptian cats attended with any better success. The best arrangement was found to be the employment of skilled rat-catchers giving their whole time to the work. Up country plague appeared in two districts, Muanza and Kondoa-Irangi, in both of which places a simultaneous epizootic among rats was observed. Over 132 persons were reported as attacked by plague, the infection having, it is alleged, been introduced from Port Florence (in British territory) into Kondoa-Irangi, though it is admitted that plague has been endemic in Muanza for many years.

Malaria and Blackwater Fever.—Ankylostomiasis.

Malaria and blackwater fever are responsible in East Africa for a third of all reported sickness and deaths. Anti-mosquito measures, more especially in the coast towns, were actively carried out, and search was made to discover carriers of the parasite. In Tanga alone 13,704 persons were specially examined, and in the blood of 5837 of them the malarial parasites were found; and of 560 Europeans, none of whom had obvious illness, 66 were discovered with parasites in their circulation. As regards children with splenic enlargement, 787 out of 1130 examined were positive—that is, 70 per cent. An increased rainfall was associated with greater prevalence of malaria during the year. In towns—such as Daressalam—the number of dwellings in which the doors and windows are screened with wire gauze is becoming larger each year, and in the native huts the use of mosquito nets at night is getting more general. On the other hand, it cannot be denied that the number of Europeans who habitually neglect quinine prophylaxis is on the increase.

Ankylostomiasis has considerable influence upon the sickness and mortality among the natives of the colony, and on economical grounds its suppression is very desirable. In two districts the respective medical officers examined the stools of altogether 10,150 persons, and of these 4188 were found infected. The campaign against ankylostomiasis includes the distribution gratuitously of leaflets in German and Swaheli, giving a short account of the way the disease is spread and how it can be prevented. Regulations for providing proper and sufficient latrine accommodation are enforced, as also measures for protection of domestic water-supplies. The stools of all suspected cases are microscopically examined, and appropriate treatment is given to all found to be infected.

Sleeping Sickness.

Sleeping sickness is prevalent in two parts of the colony, on the shores of the Victoria Nyanza and along the banks of Lake Tanganyika. A sum of rather more than £12,000 was expended in the campaign against the disease during the year. The plan of interning all persons suffering from sleeping sickness in camps was not pressed on account of the grave objections made to it by the natives, but steps were taken, where practicable, to remove the threatened population from the fly-infected regions to other fly-free areas, as has been done in Uganda by the British authorities. Efforts were made also to cut down bush and undergrowth near water where the glossina palpalis makes its haunts and breeding places. The drugs used in the treatment of the sleeping sickness cases were atoxyl, arsenophenylglycin, arsacetin, mercury, &c., alone or in combination, the two first-named giving, perhaps, the best results.

It is evident from the extracts we have quoted that in East Africa, as well as in the other colonies of Germany, the treatment and prevention of disease are carried out by the most modern methods. The economic development of these possessions, rapidly progressing, notwithstanding all the hindrances arising from endemic tropical disease, need not therefore surprise us.

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

CANADIAN REPRESENTATIVES.

THE following nominations have been received from the Canadian National Committee in response to the invitation sent them by the Organising Committee:—

Executive Committee.—Dr. Alexander McPhedran, Toronto; Dr. W. H. B. Aikins, Secretary of the Canadian Committee, Toronto.

Organising Committee.—Dr. George Armstrong, Montreal, President of the Canadian Medical Association; Dr. C. K. Clarke, Dean of the Medical Faculty, University of Toronto; Dr. J. C. Connell, Dean of the Medical Faculty, Queen's University, Kingston; Dr. H. H. Chown, Dean of the Medical Faculty, University of Manitoba, Winnipeg; Dr. E. P. Lachapelle, Dean of the Medical Faculty, Laval University, Montreal; Dr. F. J. Shepherd, Dean of the Medical Faculty, McGill University, Montreal.

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Council.—James Playfair McMurrich, M.A., Ph.D., Professor of Anatomy, University of Toronto.

Section II.—Physiology.

Vice-President.—Thomas Gregor Brodie, M.D., F.R.S., Professor of Physiology, University of Toronto.

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Council.—John Joseph Mackenzie, B.A., M.D., Professor of Pathology and Bacteriology, University of Toronto.

Section III. (a).—Chemical Pathology.

Council.—John Beresford Leathes, B.A., M.B., B.Ch., F.R.C.S., Professor of Chemical Pathology, University of Toronto.

Section IV.—Bacteriology and Immunity.

Council.—Alfred H. Caulfield, M.B., Director of the Pathological Department, National Sanatorium Association, Gravenhurst, Ontario; Gordon Bell, M.D., Bacteriologist for Manitoba, Professor of Bacteriology, Manitoba University.

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Section VII. (b).—Anæsthetics.

Council.—Robert A. Stevenson, M.D., Toronto; Samuel Johnston, B.A., M.D., C.M., Demonstrator in Anæsthesia, University of Toronto.

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Section XX.—Naval and Military Medicine.

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Council.—Lieutenant-Colonel J. T. Fotheringham, M.D., Army Medical Corps, Toronto.

Section XXI.—Tropical Medicine.

Council.—J. L. Todd, B.A., M.D., B.Sc., Associate Professor of Parasitology, McGill University.

Section XXII.—Radiology.

Council.—F. C. Harrison, B.A., M.B., Assistant in Pharmacology, University of Toronto, Physician, Toronto Hospital for Incurables.

A GLIMPSE AT OLD-TIME CAMBRIDGESHIRE DOCTORS.

THE kind of history that consists merely of recounting a number of isolated facts is of little profit. It is safe to say that reconstructive works, such as Becker's "*Gallus*" and his "*Charicles*," convey a better concrete idea of the actual daily life in classical times than any amount of the kind of classical reading which we do as schoolboys. We must learn to view archæological remains with the mind's eye as part of the reconstructed whole. We are led to these reflections by the perusal of a pamphlet by Dr. W. M. Palmer on "Cambridgeshire Doctors in the Olden Time,"[1] wherein we are shown these worthies, not as curiosities in a museum, but as human beings, living their lives as professional men in an environment superficially so totally unlike, and yet in its fundamentals so essentially the same as our own.

Some Interesting Details.

Dr. Palmer's paper deals chiefly with the sixteenth and seventeenth centuries. He brings the dry bones to life by giving us, after a preliminary excursus on his sources of information, the regulations of early medical practice, and the various grades of medical practitioners, an interesting and humorous sketch of two village practitioners, respectively of the sixteenth and seventeenth centuries, as well as equally interesting records of certain Cambridge doctors—viz., Walter Lemster, physician (? 1440)–1487; John Thomas, surgeon (? 1490)–1545; Robert Pickering, physician (a contemporary of Thomas); John Hatcher, M.D. (? 1512)–1587; Thomas Lockyn, M.D., 1528–1591; and William Butler, 1536–1618.

The first important Medical Act, passed in 1511, required, as regarded country doctors, that no person should practise as a physician or surgeon in any diocese until he had been examined and approved by the Bishop, aided by such expert persons in those faculties as were convenient. The penalty was £5, or £50 of our money, for each month in which he practised without such licence. A search through the Bishop's Court books discovered 15 medical practitioners in the diocese of Ely in 1640, of whom four were in Cambridge and the rest at Brinckley, Chatteris, Chesterton, Coton, Cottenham, Ely, Ickleton, Melbourn, Meldreth, Shudy Camps, and Wisbech, though this list is probably not complete. There were also 33 midwives in the county and Isle of Ely. The six recognised grades of practitioners appear to have been physicians, surgeons, barber-surgeons, apothecaries, midwives, and bone-setters, of whom the first four had either to take a degree or licence at one of the universities or to pass through an apprenticeship.

Dr. Palmer appears to doubt the truth of the general opinion as to the low status of the surgeon of those days, for he says: "Most of the writers on the history of medicine have been physicians, and they have invariably put the position of the surgeon as a low one."

A Country Practitioner at the End of the Sixteenth Century.

Speaking of the real country practitioner, the doctor living in a country village, with no colleague within several miles, Dr. Palmer tells all he has been able to find out about one Mr. John Stacey, a predecessor of his own in Linton, who first came under his notice through the records of a medico-legal case of 1581. A woman having been indicted before the Bishop's Court "for incontinency and contingent offences," called in her defence her doctor, Robert Widdows, of Cambridge, but "either Dr. Widdows had scruples about divulging professional secrets, even in the spiritual court, or did not want to be cross-examined, or Mrs. Horner hadn't paid her bill—anyway he wouldn't give evidence." So she fell back on her husband's doctor, Mr. John Stacey, of Linton, who attended and gave evidence in support of her character. What the issue of the trial was we are not told, but we learn of Stacey that he was at one time a trusted member of Sir Phillip Paris's household, who left him the keeping of his house in Linton during the nonage of his son Robert. On Robert's death before attaining his majority, Stacey bought a house in Linton and settled in practice. He seems to have been successful, for in 1592 he paid the fifth highest amount of taxes in Linton.

Another Country Doctor (1685).

The house of another country doctor, Mr. John Longworthy, a practitioner in physic and surgery, West Wrattling, a small country village, in 1685, is described as follows:—

> The house consisted of hall, great and little parlours, closet for drugs and surgical instruments, kitchen, pantry, and cellar, with five bedrooms and a garret which was used as a granary. A building with two gables and a connecting hall, such as still exist in this county, would fit this description. On entering the hall you would have seen two gate-legged tables, five joined stools, a grandfather's clock, and a corner cupboard. The hearth contained a fire grate, but the floor was carpetless. In the little parlour was an oval table and six painted chairs. No carpet and an open hearth. In the great parlour was the only carpet in the house; an oval table, probably of walnut, six leather and two panelled chairs and an open hearth with large cobirons. As regards the bedrooms, the hall chamber and the great parlour chamber contained fireplaces, which were also open hearths. In the former was a four-poster bed, a carved oak hutch, three chairs, and a pair of bellows. In the great parlour bedroom, evidently the best bedroom, was another four-poster with curtains, a chest of drawers, and a looking-glass, altogether valued at £10, the most expensively furnished room in the house. The other bedrooms were meanly furnished and without fireplaces. One of them is called the manservant's room, so the doctor's groom slept in the house. In the kitchen was a table, with four chairs and a screen. The value, including roasting apparatus, brass and pewter, was £6 10*s*. The only eating utensils mentioned besides this pewter are a case of knives in the pantry and some earthenware.

Of linen there was goodly store, 12 pairs of sheets and five dozen table napkins (forks were not then in general use in England so that the fingers required constant wiping); and this, Dr. Palmer reminds us, was linen that did not wear out and was often bequeathed in wills. In the cellar were four half-hogsheads of beer and smaller barrels, and there was a cider press in the brewhouse. "His instruments and utensils for physic and chirurgery, two stills, one mortar, and a few old books, £4," were of exactly the same value as his linen. Dr. Palmer depicts his subject as probably spending many hours "grinding dried roots to powder in his mortar, with one eye and ear on the bubbling of the fluid in his still," and shrewdly remarks: "A man who spent hours in the preparation of his physic had more faith in it than some have nowadays." Mr. Longworthy was also a farmer, as many country doctors are to some extent to-day, and his agricultural goods amounted to £65 out of a total of £121.

Much quaint information has been collected by Dr. Palmer

[1] Cambridgeshire Doctors in the Olden Times, 1468–1827. By W. M. Palmer, M.D. Durh. From the Cambridge Antiquarian Society's Communications, vol. xv., 1911.

about the drugs used by a country doctor of the eighteenth century. Occasionally possessions to be found in the inventories suggest the spoil of churches. For instance, Dr. Hatcher, of Cambridge (? 1512–1587), possessed, among other things, "a cope of tissue upon green velvet, with a cape and border of images of needlework," valued at 35*s.*, and "an auter cloth of purple velvet with branches 3¾ yards, 25*s.*"

The Case of a Cambridgeshire Vicar.

Dr. Palmer concludes his very interesting paper with "a sad account of a Cambridgeshire vicar of the fifteenth century who was dissatisfied with local skill and went to London for further advice," which he sought from John Brown, warden of the Barber-Surgeons in 1494. The latter undertook to "do his cure" on the parson, who on his part undertook to pay £10 (half a year's stipend of his vicarage), half when he could walk without a crutch and hold up his arms so that he might say mass, the other half 13 weeks after he was completely whole. But he committed the mistake, poor simple soul, of signing an obligation of £20 to compel him to fulfil his bargain when cured. After he had been more than six months in the city at great expense to himself, the surgeon asked for his fee and was met with the objection, "But I am in like case as I was when first you took me in cure and no better." He refused to pay and the surgeon ceased to attend.

The poor vicar's expostulation, however, was fruitless, for the surgeon commenced an action for debt by means of the obligation against the vicar in the Sheriff's Court, to which the vicar put in surety and was prepared to answer. But the wily surgeon knew a trick worth two of letting the case come to trial, for, in Vicar Dobson's own words, "Brown now proceedeth no further in the action, but lets it depend in the court, to thentente that Dobson should lie styll in London to his grete costs and charges unto such tyme as by that means he shulde be fain to pay Brown £5, that he demandeth for his labour." No more is known about the case, but as the next appointment to the vicarage of Melbourn occurred in 1503, the vicar probably lived until then. Dr. Palmer closes his paper with the pithy remark, "The fame of London specialists must have been dim in that village for many years to come."

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Proposed Extension of the Present System of Medical Treatment.

THE Children's Care Committee reported to the Education Committee of the London County Council on March 6th that it had approved certain variations in the number of cases dealt with at the treatment centres controlled by committees of medical practitioners in Islington, St. Pancras, and Hackney. An offer had been considered from a voluntary committee, not wholly composed of medical practitioners, to establish an additional centre in Poplar for treatment on five afternoons a week upon the conditions proposed in respect of other centres. The committee had approved of arrangements with this local committee for twelve months, the number of children to be dealt with being 880 suffering from eye defects and 1320 suffering from ear, nose, and throat ailments. The Metropolitan Hospital, Kingsland-road, was prepared to undertake the treatment of 500 eye cases and 500 ear, nose, and throat cases a year upon the terms usually offered by the Council, and the Care Committee had agreed to the inclusion of this hospital in the medical treatment scheme as likely to be of assistance in meeting the needs of Haggerston and South Islington. The Committee had also accepted an offer by the authorities of St. Cecilia's Home, Commercial-road, Stepney, to arrange for the cleansing of verminous children and for the medical treatment of ailing children. Treatment would be provided for 440 cases and it would be given in two inter-communicating rooms. A doctor would attend on one half day a week; his salary would be paid by the Council. The cost if 440 cases were treated for ear, nose, and throat ailments not requiring operations and for external eye diseases would be £104 a year.

In connexion with the foregoing the Care Committee drew attention to the steps taken by the Council since the autumn of 1911 (in accordance with the promise to the Board of Education), with a view to coördinating medical inspection and treatment, and to securing the efficiency of the treatment centres. Under newly proposed arrangements the following provisions were included: (1) The local committees had agreed that the doctors themselves who performed the work (instead of as heretofore their qualifications only) should be subject to the approval of the Council; (2) arrangements for the attendance of a lay officer or a nurse to supply information to school care committees as to the nature of treatment ordered by the doctors were now in operation at all the existing centres, and it was proposed to extend them to suggested centres; (3) the school doctors and the doctors at the centres would exchange information; and (4) the adoption of the proposals now made would give the Council experience of providing treatment at three types of centre—namely, at hospitals, at centres established by local practitioners, and at centres provided by committees which were not composed of medical practitioners. The committee felt that the Board of Education should be informed of these points, and also of the experiment approved at the end of 1911 and put into force on March 1st this year, in the East-end of London, in carrying out medical inspection by full-time officers under the supervision of a divisional medical officer, who would work in close coöperation with the Council's officers at the treatment centres. The Board should be asked to sanction the establishment of the proposed additional centres as a matter of urgency, inasmuch as there was special need for the treatment of children in the districts which would be served by the centres. A comprehensive report on the work of medical treatment in London generally would be submitted in October next. The total expenditure involved in the present proposals was £3565 a year for treatment and £475 in the first year for apparatus.

The Education Committee directed that a letter in these terms be sent to the Board of Education.

Playground Classes.

The Board of Education, while commenting favourably on the improved arrangements for medical supervision recently introduced into playground classes, has made certain suggestions to the London County Council with a view to bringing about further improvements. These were submitted to the Council on Feb. 20th. In classes in which all the children are definitely chosen on the ground of delicacy of health the Board thought it was desirable that every child should be subjected to systematic medical inspection as early in the session as practicable, and that all initial and subsequent records made by medical officers should be dated. In classes in which the influences needed were mainly preventive the Board thought that the medical examination should be conducted on more uniform lines than at present. While some examinations were thorough, others appeared to omit such important details as the chest and lungs, others again included merely such items as could be gathered from simply looking at the child, while in some of the schools medical supervision of every kind was omitted. That there was need for inspection of the more thorough kind was obvious from the serious cases of defect that occurred in certain of the classes, the scholars of which had been subjected to medical inspection. It was important that the results of routine medical inspection should be re-entered on playground class records (as was done in some cases) in order that the open-air class might be better utilised as a means of following up those cases most likely to benefit under its influence. "Control" measurements might be more generally instituted in classes of the kind referred to, and they should have special reference to height, weight, and hæmoglobin content. The Board pointed out that the open-air class was an experiment likely to yield results useful to the whole country, and it was important, therefore, that its usefulness should rest on scientific bases of the kind to be obtained by means of "control" measurements.

The Council decided to ask the medical officer to meet the suggestions of the Board as far as possible.

The Council also resolved to ask the Board of Education to approve the formal appointment of Dr. W. H. Hamer for the purpose of certifying defective or epileptic children within the meaning of Section 1 of the Elementary Education (Defective and Epileptic Children) Act, 1899.

Medical Inspection of Secondary Scholars.

The Education Committee reported that the governors of Lewisham Grammar School had asked whether it would be possible for the Council's medical officer, in examining the scholarship holders at the school, also to examine other pupils at a fixed fee per pupil to be paid by the pupil's parents. The committee pointed out that the Council had already decided to examine all pupils, whether fee-paying or scholarship holders, in its own secondary schools, and so had accepted the principle that medical examination of all pupils was desirable. The cost of the examination of the fee-paying pupils would not exceed 2*s.* a year per pupil, and the committee recommended that the governors' request should be granted on this basis.

Principle of Open-air Schools Approved.

The Education Committee of the London County Council has had under consideration the policy to be pursued with regard to open-air schools, and has decided that, having now passed the experimental stage, they should be placed on a permanent basis. The first open-air school was held at Bostall Woods in 1907, and in view of the great improvement in the health of the children who attended it was decided to extend the experiment to three schools for 1908. In 1911 the schools were continued a greater number of weeks than in previous years—in one case the school was held during the whole year. The favourable medical reports upon the open-air schools held during the year 1908 had been confirmed in successive years. It was evident, the Special Schools Committee stated, that children suffering from debility, anæmia, &c., and consequently unable to benefit from the instruction in ordinary schools, could be restored to take their places in their classes. The physical and intellectual improvement shown was very remarkable, and the committee had come to the conclusion that these results were due in a large measure to the course of instruction given under open-air conditions. In regard to the extension of open-air schools, playground classes would have a material effect in reducing the number of children who required the *régime* of the open-air school. The medical officer, however, stated that there was a large number of children in London elementary schools suffering from some specific condition requiring such treatment, and presumably there would always remain an appreciable number of these.

At the same time the committee pointed out there were two great difficulties in the way of any considerable extension of the system of open-air schools: one was the extreme difficulty of obtaining sites, and the second the cost, which was very high as compared with that of ordinary schools. The average cost per head of attendance for nine months at open-air schools was £14 7*s.*, and at ordinary schools £1 9*s.* Having regard to these circumstances, while the principle of holding a limited number of open-air schools should be approved, any extension of the system should be very gradual. When the playground classes were in fuller operation, and more use was made of existing opportunities of open-air work, it would be possible to gauge the amount of special provision still necessary.

LITERARY INTELLIGENCE.—We have received from Messrs. John Wright and Sons, Limited, of Bristol, an unbound and incomplete copy of "An Index of Differential Diagnosis of Main Symptoms," by Dr. Herbert French, with the explanation that now that their own work is practically over—as evidenced by the book before us—there seems likely to be a still further delay in binding owing to the coal strike. This is, of course, the more regrettable as the publishers admit that already they have had to keep their subscribers waiting an unconscionable time after the probable date of publication owing to the difficulty in construction of the general index, which turned out a formidable task greatly exceeding their expectations.—Messrs. J. and A. Churchill announce the following for immediate publication: "Diseases of the Eye, a Manual for Students and Practitioners," by Mr. J. H. Parsons. A new feature in this, the second, edition will be the inclusion of a colour test card in wools. The same firm is publishing a seventh edition of "A Simple Method of Water Analysis," by Dr. J. C. Thresh; and a second edition of "The National Standard Dispensatory," edited by H. A. Hare, B.Sc., M.D., Charles Caspari, and H. R. Rusby, M.D.

MEDICINE AND THE LAW.

The Constituents of Butter.

AT the Tower Bridge police court recently a summons against the Central Creamery Company, Limited, which had been dismissed upon a technical point and sent back for re-hearing after an appeal, was heard by Mr. Rose and dismissed, with £40 costs, against the Board of Agriculture, which was responsible for the prosecution. The prosecution sought to show that the presence of certain milk powder found upon the premises of the defendant company constituted an offence against Section 3 of the Butter and Margarine Act, 1907, and it was also alleged that the high percentage of lactose contained in butter found upon the defendants' premises showed that milk powder had been used in its preparation. It had been stated that the powder was the property of a director of the company and was stored upon its premises pending its sale to private customers. Mr. Otto Hehner, giving evidence for the defence, said that the blending, reworking, and renovating of butter was necessary for the production of an article of uniform quality such as was required in such a business as the defendants'; that milk powder was largely used in connexion with such renovation; and that any person using modern methods would so employ sterile milk powder. He also deposed that whereas butter usually contained 0·4 per cent. of lactose, he had found in samples as much as 1·2 per cent., whereas 1·5 was the amount shown by the sample taken on the defendants' premises. He assured the magistrate that it would have no harmful effect, and stated that he always accepted as butter an article containing 80 per cent. of butter-fat. Further evidence given by analysts showed that all the constituents of milk powder were found in all butter, and that it had a high nutritive value. It was agreed as to the standard of 80 per cent. of butter-fat being sufficient, and as to the good quality of the defendants' butter. Mr. Rose found that the milk powder was not intended to be used for the adulteration of butter, and dismissed the summons as stated above.

Excessive Use of Thyroid Extract.

At the Westminster Bridge police court recently Mr. Horace Smith had before him, upon a charge of stealing from the Army and Navy Stores, the wife of a colonel in the army, who had taken a number of articles exposed for sale, and while purchasing in the drug department a large quantity of thyroid extract had also abstracted two boxes of throat pastilles. Evidence was given by Mr. T. L. Archer, divisional surgeon of police, which left no doubt that when he was called to attend the prisoner at the police station she was in a highly nervous and excited condition, and that this was due to her having been deprived, while in custody, of the thyroid extract which she had bought and of which drug she had been in the habit of consuming large quantities. Mr. Archer was of the opinion that her mental condition, due to the abuse of the drug, would fully account for her committal of the acts with which she was charged. Dr. J. D. Cree, who had treated the prisoner for some months, deposed that she was suffering from Graves's disease, for which he had prescribed thyroid extract. He had increased the dose from 3 to 11 grains a day between September and Jan. 3rd, when he last saw her, and he was not aware then that she was exceeding the latter amount. By her own admission, however, she had taken recently as much as 35 or 40 grains daily, an excessive amount which would account for her condition and acts. He considered that the effect would be to destroy her mental balance, and that on Jan. 9th when she was arrested, she was not accountable for her actions. Mr. Horace Smith accepted the view expressed by the two medical witnesses, and said that it was unnecessary to hear further evidence to the same effect, which was tendered. In the course of his evidence Mr. Archer had called attention to the ease with which such a drug as thyroid extract might be purchased, Mr. P. Conway, the lady's solicitor, also making observations upon the subject. The magistrate declined to comment upon this aspect of the matter, remarking that it was not part of his duty to do so, as he was not a legislator, but the case will be noted as illustrating the danger which arises, even assuming a prescription to be in

the hands of a purchaser, owing to the existence of no legal limitation as to the frequency or continuance of its use.

General Practitioners and their Locum-tenents.

A case of considerable interest to general practitioners, arising out of the engagement of a locum-tenent, was heard at the Clerkenwell county court on March 5th. The action was brought by Mr. Henry Bazett against Dr. Thomas G. Hockridge of Lloyd-square, W.C., for £26 8*s.* in respect of damages arising out of an alleged breach of contract. The material question at issue was that of the length of notice which a locum-tenent was entitled to receive in termination of his engagement. The plaintiff stated that the defendant had made a contract with him to act as locum-tenent from Nov. 30th, 1911, to Jan. 16th, 1912, at the rate of 4 guineas per week, and board and lodging. On Dec. 15th, the plaintiff, through illness, had to leave the defendant's house for temporary rest and on his recovery he was refused permission to continue his duties. The claim was for £19 4*s.*, salary for four weeks and four days, and £7 4*s.* as an equivalent to board and lodging for the same period. The defendant called evidence of a custom in the profession of 48 hours' notice to terminate such an engagement. The plaintiff denied this, and contended that each medical man had his own rules, and that these varied. In the case of illness of a doctor a locum-tenent was engaged for an indefinite period; if the engagement was by the day payment was at the rate of 1 guinea per day. The defence was that a principal could dismiss a locum-tenent at practically a moment's notice. It was only a temporary engagement, though payment was usually made weekly for the sake of convenience. The defendant cited 38 years' experience of such engagements which were always subject to 48 hours' notice. The plaintiff, in addressing the bench, submitted that the relation between principal and locum-tenent was that of master and servant, and that it would be an exceedingly hard and serious thing for the locum-tenent to be placed outside that law and, because of illness, have to bear the brunt of it all. In giving judgment his honour said that the plaintiff fell ill and had to be replaced by another locum-tenent. The plaintiff took up the position that "although you have to pay somebody else you must pay me as well." It seemed to him impossible to accept that conclusion. The principal of the law of master and servant did not apply in this instance and judgment must be for defendant with costs. The plaintiff asked whether he had the right to appeal, to which his honour replied in the affirmative.

An Interesting Case under the Workmen's Compensation Act.

Recently at the Weston-super-Mare county court, before his Honour Judge Austen, the widow of a chef at a local hotel claimed £300 under the Workmen's Compensation Act for the death of her husband. The deceased man, whilst dressing in his room in the hotel, slipped over a mat, and complaining of great pain went home and sent for a medical man. The medical attendant stated that deceased had abdominal pains, and a post-mortem examination showed that death was caused by hæmorrhage from a ruptured right renal artery. He added that although he had never known or read of a renal artery being ruptured by a violent twist, he considered in this case that that had occurred and caused death. The medical man was not allowed to state what the deceased had told him of the accident—viz., that he had slipped whilst dressing and violently twisted himself—his Honour holding that the statement would not be evidence. Judge Austen, in deciding against the claim, said he was not satisfied that an accident had taken place, or that it arose out of, and in the course, of the deceased man's employment.

Libel Action brought by a Dentist.

A most righteous verdict was given on Tuesday last by a King's Bench jury, when Mr. F. R. Moser was awarded £600 damages for libel, the defendants, Mr. George Smith, a Camberwell builder, and his wife having accused him of improper behaviour towards the female defendant while she was his patient. The accusations were obviously and utterly untruthful.

THE Princess Henry of Battenberg has consented to become a vice-patron of the Chelsea Hospital for Women.

Public Health.

REPORTS OF INSPECTORS IN THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On an Outbreak of Enteric Fever at Oakenshaw, in the Urban District of Willington, by Dr. T. CARNWATH.—Oakenshaw is a mining village with a population of some 1280 persons, about seven miles to the south-west of the city of Durham. It is included in the urban district of Willington, in which enteric fever has been endemic for many years. Before 1909 Oakenshaw itself was relatively free from the disease, but in that year sporadic cases began to occur in the village with unusual frequency, and this continued on into 1910, finally culminating in a severe outbreak in April and May, which was practically confined to the village, and did not extend to other parts of the Willington district. Systematic application of the Widal test at the time of Dr. Carnwath's inquiry suggested that many cases of illness had occurred which were to be attributed to enteric fever infection, although for one reason or another they had not been notified. Dr. Carnwath concludes that there were altogether 74 cases, 11 of which occurred in 1909 and the remainder in 1910; of these 74 cases 7 were fatal. As many as 33 occurred in the last week of April and in the first week in May, and special attention was directed to the explanation of this striking feature of the outbreak. The latter appeared almost certainly to be due to a milk infection. The milk-supply of the village was obtained mainly from three farms, of which one farm, X, supplied 85 households, or 35·1 per cent. of the total houses in Oakenshaw. Of the 57 invaded households as many as 49 obtained milk from farm X, and there was evidence that the attack of the few persons who were customers of the other farms might be attributed to those farms having had dealings in milk with the X farm. The amount of milk delivered daily to each household was on an average from half a pint to a pint; it was generally found that the member of the family who fell ill was the one who "drank most milk," but even so the quantity consumed in the majority of cases was exceedingly small. A heavy proportional incidence of the disease on females and children gave confirmatory evidence of the infection having been milk-borne. At the farm X only two persons, mother and son, had anything to do with the handling of the milk from the time it left the udder until it was delivered to the customer, and this had been so for 12 years. No history of enteric fever could be obtained in either case, although the son had suffered from a "bad cold" with some affection of the lungs and bowels in 1908. The mother had no history of any sickness save a liability to bilious attacks. Samples of urine and fæces obtained from the son were examined by Dr. J. C. G. Ledingham at the Lister Institute for typhoid bacilli with negative results, but those obtained from the mother in August, 1910, and again in December, contained large numbers of typhoid bacilli. It may reasonably be concluded, therefore, that Mrs. X somehow caused the infection of the milk at intervals during 1909 and 1910, and did so with particular intensity in April of the latter year. The question why this infective ability was not shown, at any rate to any conspicuous extent, before 1909 did not admit of any satisfactory answer.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 94 largest English towns having an estimated population of 17,559,219 persons in the middle of this year, 8603 births and 4846 deaths were registered during the week ending March 9th. The annual rate of mortality in these towns, which had steadily decreased from 21·6 to 15·4 per 1000 in the four preceding weeks, further declined to 14·4 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual death-rate in these large towns averaged 16·7 per 1000, while in London during the same period the average death-rate did not exceed 15·9 per 1000. The annual death-rates last week in the several towns ranged from 6·0 in Hornsey, 6·3 in Enfield, 6·8 in Gillingham, 7·3 in Walthamstow, and

7·5 in Ilford, to 20·3 in Great Yarmouth, 20·7 in Oldham, 21·0 in Stockton-on-Tees, 24·2 in Salford, and 25·8 in Barrow-in-Furness.

The 4846 deaths from all causes were 348 fewer than the number in the previous week, and included 378 which were referred to the principal epidemic diseases, against 353 and 394 in the two preceding weeks. These 378 deaths from the principal epidemic diseases included 136 from whooping-cough, 101 from measles, 53 from infantile diarrhœal diseases, 49 from diphtheria, 25 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1 1 per 1000, against 1·0 and 1 2 in the two preceding weeks. The deaths attributed to whooping-cough, which had decreased from 186 to 142 in the four preceding weeks, further declined to 136 last week, and caused the highest annual death-rates of 1·7 in Southampton and in Walsall, 1·8 in Great Yarmouth, 2 4 in Barrow-in-Furness, and 2·5 in Merthyr Tydfil. The deaths referred to measles, which had increased from 69 to 109 in the three previous weeks, slightly declined to 101 last week; the highest annual death-rates from this disease were 1·3 in Swansea, 1·4 in Oldham, 1·9 in York, 2·0 in Southport, 3 6 in Warrington, and 4·3 in Salford. The fatal cases of infantile diarrhœa, which had been 58, 39, and 49 in the three preceding weeks, were 53 last week, and included 17 in London, 7 in Liverpool, 4 in Stoke-on-Trent, 4 in Sheffield, and 3 in Birmingham. The deaths attributed to diphtheria, which had increased from 43 to 53 in the three previous weeks, were 49 last week; 14 deaths were recorded in London and its suburban districts, 4 in Portsmouth, 4 in Manchester, and 3 in Leeds. The deaths referred to scarlet fever, which had been 28, 17, and 21 in the three preceding weeks, rose to 25 last week, and included 5 in London, 4 in Manchester, and 3 in Leeds. Of the 14 fatal cases of enteric fever, which were 5 less than the average in the three preceding weeks, 3 were registered in London, 2 in Manchester, and 2 in Rotherham.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had decreased from 1512 to 1392 during the four preceding weeks, had further declined to 1358 on Saturday last; 161 new cases of this disease were admitted to these hospitals during the week, against 154, 181, and 160 in the three previous weeks. These hospitals also contained on Saturday last 1113 cases of diphtheria, 478 of whooping-cough, 231 of measles, and 58 of enteric fever, but not one of small-pox. The 1152 deaths from all causes recorded in London were 76 fewer than the number in the previous week, and were equal to an annual death-rate of 13·3 per 1000. The deaths referred to diseases of the respiratory system, which had steadily declined from 545 to 295 during the four preceding weeks, further fell to 259 last week, and were 69 below the number registered in the corresponding week of last year.

Of the 4846 deaths from all causes in the 94 large towns, 169 resulted from different forms of violence, and 358 were the subject of coroners' inquests. The causes of 39, or 0·8 per cent., of the deaths registered last week were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, Nottingham, Portsmouth, and in 66 other smaller towns. The 39 uncertified causes of death last week included 9 in Liverpool, 8 in Birmingham, 3 in Preston, 2 in Salford, and 2 in South Shields.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, having an estimated population of 2,182,400 persons in the middle of this year, 1138 births and 731 deaths were registered during the week ending March 9th. The annual rate of mortality in these towns, which had been 18·5 and 13·7 per 1000 in the two preceding weeks, declined to 17·5 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual rate of mortality in these towns averaged 18 9 per 1000, and was 2·2 per 1000 in excess of the mean rate recorded during the same period in the 94 large English towns. The annual death-rates in the several Scotch towns last week ranged from 4·6 in Partick, 7·6 in Falkirk, and 9·0 in Clydebank, to 22·0 in Greenock, 22 5 in Kilmarnock, and 23 1 in Perth.

The 731 deaths from all causes were 53 fewer than the number in the previous week, and included 76 which were referred to the principal epidemic diseases, against 120 and 93 in the two preceding weeks. Of these 76 deaths, 39 resulted from measles, 10 from scarlet fever, 8 from whooping-cough, 8 from diphtheria, 8 from infantile diarrhœa, and 3 from enteric fever, but not one from small-pox. These 76 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·8 per 1000, or 0·7 per 1000 above that recorded in the 94 large English towns. The deaths attributed to measles, which had decreased from 63 to 56 in the three preceding weeks, further declined to 39 last week, and included 21 in Glasgow, 6 in Edinburgh, 4 in Greenock, and 3 in Leith. The deaths referred to scarlet fever, which had been 2, 3, and 6 in the three preceding weeks, further rose to 10 last week, and comprised 5 in Glasgow, 3 in Greenock, and 2 in Aberdeen. The fatal cases of whooping-cough, which had been 14 18, and 16 in the three preceding weeks, fell to 8 last week, and included 3 in Glasgow and 2 in Edinburgh. The deaths referred to diphtheria, which had been 6, 22 and 9 in the three previous weeks, were 8 last week, of which number 5 occurred in Glasgow. The deaths of infants under two years of age from diarrhœal diseases numbered 8, against numbers declining from 14 to 5 in the three preceding weeks; 2 deaths were recorded in Glasgow, in Dundee, and in Paisley. The 3 fatal cases of enteric fever were registered in Glasgow.

The deaths referred to diseases of the respiratory system in the 18 towns, which had decreased from 220 to 138 in the four preceding weeks, further declined to 136 in the week under notice, and 29 deaths were attributed to different forms of violence.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having a population of 1,157,014 persons in the middle of this year, 622 births and 512 deaths were registered during the week ending March 9th. The annual rate of mortality in these towns, which had steadily declined from 31·0 to 22 1 per 1000 in the four preceding weeks, rose to 23·1 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual death-rate in these Irish towns averaged 23·5 per 1000; in the 94 large English towns the mean annual death-rate during the same period did not exceed 16 7 per 1000, while in the 18 Scotch towns it was equal to 18·9 per 1000. The annual death-rates in the several Irish towns last week were equal to 26 9 in Dublin (against 13·3 in London), 20·3 in Belfast, 24 5 in Cork, 30·6 in Londonderry, 19·0 in Limerick, and 7·6 in Waterford; while in the 16 smallest of these Irish towns the mean annual death-rate last week was equal to 21·3 per 1000.

The 512 deaths from all causes in the 22 Irish towns were 22 in excess of the number in the previous week, and included 41 which were referred to the principal epidemic diseases, against 27 and 36 in the two preceding weeks; of these 41 deaths, 13 resulted from whooping-cough, 13 from infantile diarrhœal diseases, 5 from enteric fever, 5 from diphtheria, 4 from measles, and 1 from scarlet fever, but not one from small-pox. These 41 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·8 per 1000; the death-rate last week from these diseases did not exceed 1·1 per 1000 in the 94 large English towns, while in the 18 Scotch towns it was equal to 1 8. The deaths attributed to whooping cough, which had declined from 25 to 16 in the four preceding weeks, further fell to 13 last week, and included 11 in Belfast. The deaths of infants under two years of age from diarrhœal diseases, which had been 5 and 9 in the two previous weeks, further rose to 13 last week; 6 deaths were registered in Dublin and 4 in Belfast. The 5 fatal cases of enteric fever were in excess of recent weekly numbers, and comprised 2 in Dublin, 2 in Belfast, and 1 in Limerick. The 5 deaths referred to diphtheria were 3 in excess of the average in the three preceding weeks, and included 3 deaths in Dublin. The 4 deaths from measles were recorded in Dublin, and that from scarlet fever in Belfast.

The deaths referred to diseases of the respiratory system, which had steadily declined from 239 to 135 in the four preceding weeks, were again 135 last week. Of the 512

deaths from all causes in the 22 Irish towns, 149, or 29 per cent., occurred in public institutions, and 11 resulted from different forms of violence. The causes of 32, or 6·3 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 94 large English towns the proportion of uncertified causes of death in the week under notice did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Staff Surgeons: A. McCloy to the *Research*, and J. R. A. Clark-Hall to the *Triton*. Surgeons: E. Moxon-Browne to the *Hearty*; D. A. Mitchell to the *Dido* and to the *Alert*, on recommissioning; and J. H. Wright to the *Terrible*, temporary.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Edward S. Calthrop resigns his commission (dated March 9th, 1912).

Surgeon-General G. D. Bourke, C.B., K.H.P., has been appointed on the directing staff of the Irish Command Staff tour to be held from March 25th to the 28th.

Colonel L. E. Anderson has been granted 2½ months combined leave of absence. Colonel H. J. Barratt has taken up duty as Principal Medical Officer of the Allahabad Brigade.

Lieutenant-Colonel S. C. Philson has been selected for the increased rate of pay under Article 317 of the Royal Warrant. Lieutenant-Colonel C. H. Melville has been selected for promotion to the rank of Brevet-Colonel. Lieutenant-Colonel A. L. F. Bate, on return from India, has been posted to the Western Command. Lieutenant-Colonel J. V. Savage has been transferred from Muttra to the station hospital at Secunderabad.

Major J. Cowan, from Woolwich, has embarked for a tour of service in India. Major F. G. Richards has taken up duty in the Cork District. Major P. MacKessack has joined the Eastern Command headquarters as Specialist Sanitary Officer, vice Major C. H. Stratton, who has embarked for service abroad. Major R. S. H. Fuhr, D.S.O., and Major W. E. Hardy have been permitted by the Director-General to exchange places on the foreign service roster. Major L. Wood has been appointed to the Fourth (Quetta) Division. Major C. W. Reilly has been ordered to join the Irish Command on March 21st and will be posted to the Cork District. Major C. Dalton and Major D. J. Collins have been detailed for duty in connexion with the Irish Command Staff Tour. Major G. S. McLoughlin, D.S.O., has taken up duty at Winchester. Major M. Swabey has been transferred from Wellington to St. Thomas's Mount, Madras.

Captain C. G. Browne has been granted six months' general leave of absence home from India. Captain T. S. Blackwell has been directed to join for duty in the Irish Command on March 21st and will be posted to the Belfast District. Captain G. Baillie has embarked for a tour of service on the West Coast of Africa. Captain M. Keane has been appointed to the Eastern Command. Captain W. R. Galwey has been appointed Specialist Sanitary Officer to the Ninth (Secunderabad) Division, in succession to Major R. W. Clements. The following transfers have been made in India: Captain J. B. Hanafin from the Second (Rawal Pindi) Division to the First (Peshawar) Division; Captain C. D. Caddell from the Fifth (Mhow) Division to Aden; Captain T. S. Eves from the Seventh (Meerut) Division to the Eighth (Lucknow) Division; and Captain D. Coutts from the Eighth (Lucknow) Division to the Seventh (Meerut) Division. Captain A. Dawson has been selected for appointment to hold charge of the Brigade Research Laboratory at Aden. Captain A. H. Bond has been granted six months' general leave of absence home from India. Captain L. L. G. Thorpe has been transferred from the Royal Victoria Hospital, Netley, to Golden Hill. Captain V. T. Carruthers has been posted to the Cork District. Captain C. P. O'Brien Butler has been transferred from Poona to Purandhar. Captain C. T. Edmunds has joined the station hospital, Peshawar, for duty. Captain W. E. C. Lunn has been granted six months' general leave of absence home from India from March 12th. Captain G. A. K. H. Reed has been appointed Company Officer at the Royal Army Medical Corps Depôt, Aldershot. Captain P. C. Douglass, from Weedon, and Captain H. A. Bransbury, from Woolwich, have embarked for a tour of service in India. Captain M. W. Falkener has joined for duty in Bermuda. Captain F. C. Sampson has been transferred to the home establishment from South Africa. Captain W. J. E. Bell has arrived home on duty from Hong-Kong.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel J. Chaytor White has been granted an extension of three months' leave on medical certificate. Lieutenant-Colonel A. W. Dawson has been appointed to hold Civil Medical Charge at Roorkee. The services of Lieutenant-Colonel A. O. Evans, civil surgeon of Maymyo, Burma, have been placed at the disposal of the Government of India in the Home Department.

Major E. J. G'Meara has been appointed a Civil Surgeon at Agra. Major C. Milne, from Jhansi, has been transferred as Civil Surgeon at Mussooree in succession to Major G. T. Birdwood appointed as a temporary measure to Agra. Major Leonard Rogers, C.I.E., has been appointed a Member of the Committee of Management of the Royal Zoological Gardens at Calcutta. Major C. B. Prall, Bengal Presidency, has arrived home from India. Major R. W. Anthony has been appointed Civil Surgeon at Dharwar. Lieutenant R. I. Binning has taken over Medical Charge at Ahmedabad. Major E. S. Peck has assumed charge of the office of Civil Surgeon at Jullundur, relieving Captain H. C. Keates, transferred. Major J. W. D. Megaw, officiating professor of pathology at the Medical College, Calcutta, has been granted privilege leave, combined with furlough, for 15 months.

The services of Captain J. H. Horne have been placed at the disposal of the Government of India for special duty in connexion with the prevention of malarial fevers in Madras Presidency. Captain H. W. Illius, on return from leave, has been appointed Civil Surgeon at Jhansi. Captain I. M. Macrae, officiating superintendent of the Central Prison at Lucknow, has been confirmed in that appointment. Captain W. Gillitt has arrived home on leave of absence from India. Captain R. T. Wells has taken up duty as Superintendent of the District Jail at Dera Ghazi Khan. Captain D. S. Patton has been appointed to officiate as Director of the King Institute at Guindy. Captain F. V. O. Beit has been appointed to the Civil Medical Charge of the Shwebo District, in place of Captain W. Egan, R.A.M.C. Captain M. L. Puri has passed the lower standard examination in the Baluchi language. Captain M. Corry has been appointed Superintendent of the District Jail at Multan, in succession to Captain W. W. Jeudwine. Captain P. S. Mills, plague medical officer at Delhi, has been transferred to Hoshiarpur. Captain H. C. Buckley, plague medical officer at Rohtak, has been transferred to Sialkot. Captain A. J. H. Russell has been granted an extension of five months of his leave of absence on the recommendation of a medical board. Captain M. MacKelvie, officiating civil surgeon at Darbhanga, has been granted privilege leave combined with furlough for one year. Captain E. C. C. Maunsell has joined the Madras Civil Medical Department. Captain H. E. S. Leathes has been appointed to act as personal assistant to the Surgeon-General with the Government of Bombay during the absence on deputation of Captain J. L. Lunham. Captain R. D. MacGregor has received six months' extension of his leave on medical certificate.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Arthur Robertson Brailey to be Staff-Surgeon (dated Nov. 7th, 1911).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant George H. Usmar to be Captain (dated Feb. 24th, 1912). Lieutenant Harry D. Rollinson is confirmed in his rank.

DEATHS IN THE SERVICES.

Colonel Francis Joseph Lambkin, R.A.M.C., at Bloemfontein, on March 8th, aged 54. He entered the army in 1881, and after serving in India and the West Indies was appointed senior medical officer to Lord Dundonald's brigade during the South African war of 1899–1902. He was present at the relief of Ladysmith and at the action at Colenso, at Spion Kop, and other operations, and in the Orange Free

State and Cape Colony (Queen's medal with five clasps and King's medal with two clasps). He was employed as syphilologist on the headquarter staff of India in 1905, and later became lecturer on syphilology at the Army Medical College in London. In 1907 he went on a special mission to Uganda to inquire into the ravages of syphilis there, and in the following year read his well-known paper on the treatment of syphilis by soamin at the meeting of the British Medical Association at Sheffield.

Owing to insufficient time to fully attend to his duties Sir Frederick Treves has retired from the Army Medical Advisory Board and the Nursing Board of Queen Alexandra's Imperial Military Nursing Service, on both of which he has served since their foundation 11 years ago. He has also signified his intention of resigning the chairmanship of the Executive Committee of the British Red Cross Society.

Correspondence.

"Audi alteram partem."

THE VALUE OF PNEUMOCOCCUS VACCINE IN THE TREATMENT OF PNEUMONIA.

To the Editor of THE LANCET.

SIR,—I have been interested in reading Dr. Nathan Raw's article in THE LANCET of March 9th on the above subject, which is a record of experience still much needed on the use of vaccines in pneumonia. I do not share with Dr. Nathan Raw the regret that an auto-vaccine is not always readily obtainable in early pneumonia. In the first place we may be sure in most cases of pneumonia, even in the influenzal and "typho-pneumonia" cases, that the pneumococcus is the predominant poison-organism present, shall I say the organism of first instance, in the pathology of the disease, and a good stock culture is therefore quite acceptable if required. In the second place, I am doubtful of the value of the vaccine in the first days of the disease when the resistance is overwhelmed by the toxic venom of the first onslaught. Thirdly, although it is true that a vaccine can be obtained within a few hours from exudation directly removed by puncture of the hepatised lung, yet these early punctures can only be obtained at considerable hazard, unless the consolidation has advanced to the surface of the lung with great rapidity. In the first days of really desperate cases I am inclined to think, from an experience, however, of one case only, that a serum—Pane's or Merck's—administered with bactericidal intent may be more valuable than a vaccine. At present I advise the vaccine to be held ready for use nearer the crisis, perhaps about the fourth or sixth day, in those cases in which the pneumonia still shows signs of spreading or involving separate parts of the same, or attacking the other lung. For this purpose a vaccine obtained with due care from the sputum of the first days of the disease has the advantage of securing the coöperation of any complicating organisms that may be present. The disadvantage is the very considerable expense often involved in obtaining an autogenous vaccine. An estimate of the organisms present may, however, be made without proceeding to make a vaccine from them, as a guide to the selection of a stock vaccine.

I cannot say that Dr. Nathan Raw's figures show much in favour of the value of vaccines in acute pneumonia. The mortality in his cases, which included 66 cases below the age of 20 and only 4 above that of 60, was a little over 16 per cent., whereas I take the average death-rate of pneumonia, taking all cases, to be about 17 per cent.; and excluding the intemperate, the mentally afflicted, and those over 65 the mortality is 12·5. I do think, however, that vaccines are of value in some cases and at those periods of the disease which I have specified, and it is desirable for them to be in readiness for use in such cases. It is in cases in which there is a tendency for the crisis to be postponed, and in those many cases in which the crisis is followed by a lingering remittent pyrexia, not due to any purulent collection, that vaccines are of undoubted value.

There is one more point on which I should like to enter a *caveat*—viz., the initial dose of vaccine. A 15 or 20 million dose is a more prudent one to begin with, which can be liberally advanced if necessary with close observation of pulse and temperature. I have recently seen a decided reaction with rigor and temperature rising to 105° from even so moderate a dose as 20 millions.

I am, Sir, yours faithfully,

Portland-place, W., March 11th, 1912. R. DOUGLAS POWELL.

THE NATIONAL INSURANCE ACT AND THE HOSPITALS.

To the Editor of THE LANCET.

SIR,—The position of the London hospitals in reference to the admission of patients when the medical benefits of the Insurance Act come into operation is one which is being, or will shortly be, considered by the governing bodies of the hospitals. Presumably they will desire and be entitled to ask for the opinions and advice of their medical staffs on the subject, and seeing the importance of the issues involved it is to be hoped that the members of the honorary staffs will take measures that their advice may be very carefully considered before being given and that they should endeavour to come to some agreement as to what is desirable. I trust, therefore, you will allow me to submit in your columns some of the points which at no distant date will have to be decided upon.

Although the National Insurance Act gives power to the Commissioners to give grants to hospitals, the Chancellor has stated, "It is not proposed to make provisions for institutional treatment," and for a time, at any rate, there will be no provision under the Act for any kind of treatment for persons under 16, nor for emergencies, nor for women, except a very uncertain number, nor will there be any provision for indoor institutional treatment (except for tuberculosis) for any persons whatever, and the amount and duration of "medical benefits" for "deposit contributors" will be very limited. There is, therefore, no reason why the voluntary hospitals should not continue to receive any of the persons or ailments coming under these categories. But under the Act the whole of the male working-class population over 16 years of age, whatever the amount of their earnings, and a large number of other persons, not manual workers, whatever their incomes, will be insured for treatment for such diseases and injuries as do not require *indoor* institutional treatment.

The voluntary hospitals are established and supported for the benefit of persons who are unable to pay for treatment. The insured persons will not only be able to pay, but will have already paid for, and be able to obtain elsewhere, the outdoor treatment they require, and it would be inconsistent for the voluntary hospitals to supply treatment and medicines to such persons who are not in need of them, while declaring that the effects of the Insurance Act will so reduce the support they receive from the public as to force them to close down beds to the exclusion of patients who require the treatment for which they are not insured.

Again, honorary medical officers should not be expected to give their services to persons who have no claim to gratuitous treatment and whom other doctors have received payment to attend. It may be pointed out that some of these persons will be in affluent circumstances, for though the Act empowers the Commissioners to exclude such persons from unlimited "medical benefits" they will be compelled in such cases to hand over to them the estimated money value of their medical benefits. It is therefore suggested that as soon as the medical benefits come into force hospitals should not accept for out-patient treatment persons who, by their insurance, are entitled to receive such treatment elsewhere. The proposal would not involve any departure from the principles on which the voluntary hospitals have always been conducted—viz., the restriction of their treatment to persons who are not able to afford to pay for it. It would involve that the hospitals should recognise that under the Act a large number of persons now qualified to receive outdoor treatment will under the Act cease to have such claim, being entitled to, and able to, receive the treatment they require elsewhere. No alteration in hospital regulations would be required, but only that the present regulations should be acted upon.

The Chancellor in his speech to a deputation of hospital representatives on July 25th, 1911, pointed out that this was the course the hospitals ought to adopt. He said: "The

hospitals should ask, 'Are you insured?' He says 'Yes'; he has no right to come to hospitals." Among the insured persons there will occur cases of doubt or of difficulty in which special advice may be advisable, and it is suggested that such insured persons shall be accepted as out-patients if sent by a medical man for consultative purposes. It may be pointed out that the "deposit contributors" will not be excluded by the proposal above made whenever their medical benefits under the Act lapse or expire. If the proposal here made is adopted by the hospitals, no hardship would occur. No persons would be excluded from hospital relief except from that form of treatment to which they are entitled and able to get free elsewhere. The present overcrowding of hospital out-patient rooms by a large number of comparatively trivial cases would be to the same extent relieved, greatly to the advantages of the patients with more serious ailments, and it is believed there would still be ample material and much better opportunities for clinical teaching.

A saving would be effected in the out-patients' department and the hospitals would continue to receive only persons unable to pay for the treatment they require. They would not be in the danger they are in at present of losing support from the public, who naturally demur at subscribing towards the treatment of persons for whose treatment they have already been taxed. The suggested restriction might at present be limited to males; to exclude insured females would exclude the large class of domestic servants and others, and this would require further consideration. The question as to asking or receiving subventions from Insurance Committees might also be left open, and it would not affect the present proposals.

I am, Sir, yours faithfully,

London, W., March 8th, 1912. SIDNEY PHILLIPS.

DOES CANCER OCCUR IN VEGETABLES?

To the Editor of THE LANCET.

SIR,—In common, I doubt not, with most students of the cancerous process, I have been much interested in speculations as to whether anything of that nature can be produced in vegetable tissues. It is obvious from the beginning that definitions are absolutely necessary in order that we should understand the subject which we discuss; and I would venture boldly to define what we mean by cancerous action to be some influence which promotes, in the first place, a reproduction of tissues, which more or less resemble those natural to the part affected, and secondarily their more or less rapid death. By some such definition we can distinguish between cancer and most forms of chronic inflammation. I have recently been working upon what is called amongst gardeners and foresters the "canker" of trees, &c. It is known to be produced in different trees by different causes. Thus we have the canker in the apples known often as the American blight, canker of the larch known as the larch disease, and canker as it occurs in the oak and many other trees by no special name. In many of these special causes such as the attacks of named parasites, &c., are well recognised. I have, however, been much impressed by the features of similarity which they possess to one another and to cancer, as it occurs in animal tissues.

My object in addressing this letter to you is not, however, to record any new observations of my own, but to ask the attention of your readers to some remarkable and very valuable contributions to our knowledge which have recently been recorded in America under the name of "The Crown-Gall of Plants: its Cause and Remedy."[1] I have read no paper recently which has caused me to regret more definitely that the New Sydenham Society has ceased its labours, for it is one which ought to be promptly reprinted. If I were to record all my own conclusions I should have to mention as mere guesses much that has now been anticipated and established on carefully collected evidence in this "Bulletin." I must not trespass on your pages with any attempt to summarise its conclusions, but must recommend your readers to procure it and to study it carefully. I had come to the conclusion that between canker in vegetables and cancer in animal tissues there was no really fundamental distinction. The paper to which I refer traces what we know as canker to a polymorphic bacterium, the B. tumefaciens. I regret that the condition has received the misleading, or at any rate not instructive, name of Crown-Gall. The growths to which it refers are very common, and abundant opportunities for investigating them will be afforded to us all during the advancing spring. I may probably be able before long to record some facts in detail respecting them, and make some criticisms, and they have no doubt already attracted the attention of some of our British botanists.—I am, Sir, yours faithfully,

Haslemere, Surrey, March 9th, 1912. JONATHAN HUTCHINSON.

[1] The Crown-Gall of Plants: its Cause and Remedy. By E. F. Smith, N. A. Brown, and C. O. Townsend. Washington: Government Printing Office. 1911. A reference may also be made to a most interesting paper on Bacterial Diseases of Plants communicated by Professor M. C. Potter, Sc.D., M.A., to the Journal of Agricultural Science, January, 1912. Mr. Potter quotes freely from Dr. Smith's paper, but contributes valuable material of his own.

THE INTESTINAL FLORA.

To the Editor of THE LANCET.

SIR,—I was much interested by Dr. Distaso's article on the Intestinal Flora, and not less interested in Dr. Edwin Goodall's criticism.[1] My observations in regard to the bacteriology of the intestinal contents have been chiefly concerned with the conditions found in infants and children. At the Infants Hospital, where some 50 babies are constantly under treatment, a bacteriological examination of the intestinal dejecta is made in every case, and in many cases repeated examinations are made. It appears to me that among infants and children there can be no doubt as to the profound pathological influence exercised in certain circumstances by that group of organisms generally known as the colon group. We have gradually arrived at methods of bacteriological diagnosis which permit of the conditions being precisely appreciated and appropriately treated. In cases of "colon toxæmia" pure cultures which have a powerful influence in rendering the intestinal conditions inimical to the growth or action of the colon organisms are systematically administered. The power of the cultures and their beneficial influence have been demonstrated on many occasions, notably in cases where relapses have followed the suspension of the cultures, while rapid improvement has ensued as a result of their renewed administration. At the present time more than one-half of the infants in the hospital are being treated by pure cultures, the nature and dose of the culture varying according to the organisms attacking the infant and their degree of virulence. In all cases of "enteritis" and allied conditions the importance of arriving at a bacteriological diagnosis is, in my opinion, paramount. I may cite two cases out of many in illustration.

I saw a child, aged 6 years, suffering from acute colitis, at Taunton in consultation with Dr. L. H. C. Birkbeck. The whole of the colon was acutely tender; there was marked hæmorrhage from the large intestine, the blood being bright red and mingled with mucus. The condition was found to be due to the bacillus enteritidis sporogenes. A pure culture of the streptococcus lacticus in an extremely active condition was prepared (the particular strain of this organism employed being the one known in the Infants Hospital Research Laboratory as "No. 52"). Within three days of the first administration all the acute symptoms had ceased, and in a week the child was convalescent. He made a rapid and uninterrupted recovery.

A child, aged 12 months, suffering from severe intestinal toxæmia, was seen by me at Westgate-on-Sea in consultation with Dr. Heaton. The child could not take milk in any form without the gravest intestinal disturbance, and his condition had given rise to much anxiety. In this instance we had to deal with a virulent colon bacillus. The power of the organism was such that it curdled milk (at 38° C.) in five hours with the production of much gas, while in other respects it gave marked evidence of its virulence. To effectively combat the powerful organisms attacking the infant a culture containing several organisms was prepared. This case required careful watching owing to the power of the antagonistic cultures and the necessity of avoiding a too sudden or too great revolution in the intestinal conditions. The result was most satisfactory. The child made a rapid and striking recovery; it was out of danger in a week, and in another week was well able to digest a fairly rich milk mixture.

In both these cases I am satisfied that but for the bacteriological diagnosis and consequent treatment the patients

[1] THE LANCET, Feb. 24th, 1912, p. 496; March 9th, p. 684.

would have done very badly. It was not possible for either of these children to have recovered without, at the best, a prolonged illness, had they not received the immediate and powerful assistance of cultures specially prepared to attack the organisms attacking them.

I would, however, strongly emphasise two points. 1. Each case must be studied on its merits; to treat cases of intestinal toxæmia with stock cultures is worse than useless. It is as dangerous as the proper treatment is beneficial. 2. The administration of the cultures must be adjusted as to dosage, according to the precise requirements of the cases; while as soon as the indications are met the administration should be suspended. As a rule it is better that the suspension should be gradual rather than complete and sudden.

The dosage is the question which is most difficult at the present time. It is therefore necessary to proceed with caution, as up to the present our information in regard to the indications for dosage is very inadequate. In all cases the dietetic treatment is of great importance. The diet commonly provided for infants and young children frequently acts as a direct encouragement of the pathogenic organisms. Some articles of diet act so powerfully in this direction that their administration may go far to neutralise the action of the cultures. I am, Sir, yours faithfully,

Harley-street, W., March 9th, 1912. RALPH VINCENT.

THE CAUSATION AND PREVENTION OF TOXIC SYMPTOMS FOLLOWING THE ADMINISTRATION OF SALVARSAN.

To the Editor of THE LANCET.

SIR,—I have read with interest the paper by Dr. J. McIntosh, Dr. P. Fildes, and Mr. H. Dearden, appearing in THE LANCET of March 9th. I note that their conclusions confirm those obtained by Major T. W. Gibbard, Major Harrison, and Lieutenant Cane, of the Royal Army Medical Corps, published in the *Journal of the Royal Army Medical Corps* for January, 1912. These officers reported that the preparation of the salt solution on the morning of the injection was the most important consideration, and had the greatest effect in reducing the severity of the reaction, and that this was still further enhanced by the fresh distillation of the water, but that the use of chemically pure sodium chloride had no advantage over common salt.

It has always been my custom to prepare and autoclave the salt solution immediately before use. It is made with distilled water, which for the last year I have filtered immediately before the salt is added. The water has only been distilled once a week, and is kept in a large glass jar, from which it is drawn off as required. I have had very few occurrences of toxic symptoms, except in cases of florid secondary syphilis, and out of close on 200 injections I have not recorded rigors in certainly more than ten, vomiting has been only very occasional, and the temperature is rarely raised above 100° F.

For the last two months, in view of the opinion of many trustworthy authorities, I have used only freshly distilled water for the preparation of the saline solution. The result is practically the same, and I have obtained a marked reaction only in cases of florid secondary syphilis. My experience leads me to the conclusion that Schreiber's theory for the occurrence of reaction (viz., the liberation of endotoxins from killed spirochætæ) is true for the great majority of cases. It appears to me that the incidence of mortality as the result of treatment with salvarsan is so small that it is probably due to some rare accident rather than idiosyncrasy in the way of intolerance to the drug. I have on one occasion had to throw away a tube of salvarsan which was cracked and the vacuum destroyed, and the contents of which, therefore, were doubtless partially or completely decomposed and highly toxic. It has occurred to me that some of the reported fatal cases may have been caused by the injection, not of salvarsan, practically non-toxic in present dosage, but of a toxic substance resulting from a crack or fault in the glass ampoule. I give, as a rule, two injections of 0·6 grm. of salvarsan intravenously, with an interval of only 48 hours, and yet have at present met no symptoms of toxicity that can be definitely traced to the drug.

I filtered the distilled water originally not with any idea of getting rid of any bacteria which might be present, but because of the possibility that foreign material might have found its way into the distilled water. I imagined that, as the saline was autoclaved prior to use any bacteria present and toxins produced by them would be destroyed by the process and rendered harmless, and it was for purely mechanical reasons that I filtered the distilled water prior to adding the salt and autoclaving the solution. As it appears to be the dead bodies of the organisms rather than the toxins which they produce which cause the symptoms of toxicity, it would seem that if the distilled water were passed through a filter sufficiently fine to prevent the passage of micro-organisms, this would meet the case and a fresh distillation each day would be unnecessary.

I am, Sir, yours faithfully,

HUGH WANSEY BAYLY,
Pathologist to the London Lock Hospitals, &c.

Upper Berkeley-street, W., March 10th, 1912.

To the Editor of THE LANCET.

SIR,—In THE LANCET of March 9th, pp. 637–640, appears a paper on the causation of the toxic symptoms that may follow the use of salvarsan. This paper is in the main a *résumé* of various theories that we have recently shown to be unsupported by sound evidence. We ask you, therefore, kindly to publish the following statement.

In July, 1911, Wechselmann advanced the theory that salvarsan fever is necessarily due to gross infection of the saline demonstrable at the time of injection. He stated that the accident of fever can be avoided by using solutions made with freshly distilled water, and the truth of this statement he fully proved in 150 cases. His theory, however, of the cause of salvarsan fever was not sound, because, as we showed in December last, fever often follows the injection of water or saline that contain practically no organisms. We showed, on the contrary, that water fever, salt fever, and, in consequence, salvarsan fever, are often due to contamination of the water by a heat-stable filtrable body that bears no relation to the degree of infection capable of demonstration at the time of injection. Salt fever and salvarsan fever are often, as we showed, nothing more or less in fact than water fever. This one of us had already pointed out six months previously at Birmingham, though we did not then know the true cause of water fever to be the heat-stable body we have since described. In January of this year, however, Dr. McIntosh and his colleagues resuscitated Wechselmann's theory to which they had already subscribed four months after its appearance as a result of independent work. In the interval they had found that gross infection of their reagents was demonstrable before the addition of salt instead of afterwards. Hence the theory was modified to this extent. A fortnight ago, at a meeting of the Pathological Section of the Royal Society of Medicine,[1] we again proved to demonstration that neither Wechselmann's theory nor its adaptation by the workers at the London Hospital is sufficient to explain either salt fever or salvarsan fever, and we showed that no adequate controls had been carried out by any of these four observers. We pointed out that the theory rested solely on the assumption that unbroken protein, and suspensions of organisms derived from the air and then grown on water or saline, are necessarily capable of producing fever after single injections. And we gave full and precise technical details of numerous experiments which clearly showed that this assumption can no longer be justified. We also illustrated our points by the exhibition of 13 charts. Dr. McIntosh was actually present during our communication, and took part in the discussion that followed. He then confessed that he had not carried out the control experiments we had shown to be essential. We therefore do not understand him when he says, in referring to our work, that he "awaits the publication of precise technical details." The experiments he now gives in THE LANCET in support of Wechselmann's theory are in no sense control experiments, as we pointed out in the discussion referred to. The practical object of our communication was to show that demonstration of the sterility of any given solution is no guarantee that it does not contain the toxic colloid

[1] THE LANCET, March 2nd, 1912, p. 579.

we described. The frequent part played by this body in producing symptoms of toxæmia after injection of sterile water or saline is an indisputable fact that can be verified at will.

We are, Sir, yours faithfully,

E. C. HORT.
W. J. PENFOLD.

Harley-street, W., March 12th, 1912.

THE SIGNIFICANCE OF THE SYMPTOMS IN CASES OF DUODENAL ULCER.

To the Editor of THE LANCET.

SIR,—Dr. Saundby's criticism of my article in your issue of to-day consists of some uninteresting remarks about myself, to which I shall make no further reference; of a statement in which, as he himself suggests, he misrepresents what I said, quoting a passage to which I did not specially refer; and, lastly, of some experiences of his own which confirm in many particulars what I actually did say.

Dr. Saundby's retort that "it is as unscientific to assume that a thing does exist until it has been seen" sounds clever, but will not stand a moment's investigation. There are many things the existence of which has not only been assumed but proved without their ever having been seen at all.

I am, Sir, yours faithfully,

C. MANSELL MOULLIN.

Wimpole-street, W., March 9th, 1912.

FUNGI FOUND IN TROPICAL BRONCHOMYCOSIS.

To the Editor of THE LANCET.

SIR,—Dr. R. Craik, in his letter to THE LANCET of Jan. 13th, applies some courteous criticisms to me for having stated that endomyces albicans liquefies gelatin, and also for having created—in his opinion—some superfluous species; he suggests that endomyces pinoyi and saccharomyces krusei are one and the same organism. As regards the action of endomyces on gelatine it must be noted that some authors (Hewlett, &c.) state that the organism liquefies the medium, others affirm the reverse. The discrepancy is most probably due to the fact that the various observers were dealing with different species. The term endomyces albicans has probably been used to cover a number of species in the same manner that the term B. coli has for years been applied to numbers of different intestinal bacteria when only a few fermentation tests were carried out.

From the reactions given in the table Dr. Craik is justified in suggesting that endomyces pinoyi and saccharomyces krusei are the same organism, as endomyces pinoyi is given in the table as not fermenting maltose. This is a mistake which I much regret crept in in my manuscript in tabulating the results. As a matter of fact endomyces pinoyi always produces acid and gas in maltose, while saccharomyces krusei never ferments this sugar: the two organisms, therefore, cannot be identical.

I am, Sir, yours faithfully,

A. C. E CASTELLANI, M.D. Florence.

Clinic for Tropical Diseases, Colombo, Ceylon, Feb. 10th, 1912.

THE LATE DR. W. R. HUGGARD.

To the Editor of THE LANCET.

SIR,—We desire to give effect to the widely expressed wish that a suitable memorial should be raised to the late Dr. Huggard. The object we have in view is twofold—firstly, to place in the Queen Alexandra Sanatorium (an institution which largely owes its existence to his self-sacrificing philanthropy) a memorial tablet, if possible with a medallion portrait of Dr. Huggard; and secondly, to create a Huggard Benevolent Fund in aid of British invalids at Davos who are in need.

We believe that it is not generally realised how many of the patients who go there fail in their pursuit of health through lack of means. The proposed fund will be invested in the names of trustees, and the income spent under the management of a carefully appointed local committee. It would be administered in close connexion with the institution known as the English Nurses' Home, with which it may, if events prove it to be expedient, be afterwards incorporated and united.

We are confident that a memorial on these lines is not only the most fitting tribute that can be paid to the memory of one who lived so much for others, but it is that which would have given the greatest satisfaction to Dr. Huggard himself.

Subscriptions should be sent to Mr. Edward C. Simmons, 74, Cheapside, E.C., or to the London Joint Stock Bank, 120, High Holborn, W.C., crossed "Huggard Memorial Account."

We are, Sir, yours faithfully,

BALFOUR OF BURLEIGH.
HENRY ANGST (British Consul-General, Zürich).
ARNOLD F. EILL.
J. MITCHELL BRUCE.
W. J. SCUDAMORE EMERY.
B. HUDSON (British Consul, Davos).
GERALD F. MCGAREL HOGG.
ROBERT W. PERKS.
R. DOUGLAS POWELL.
EDWARD C. SIMMONS.
D. A. F. VESEY.
E. S. WOODS (English Chaplain, Davos).
H. C. WRINCH.

Cheapside, E.C., March 5th, 1912.

THE RECENT OUTBREAK OF POLIOMYELITIS AT STOKE RIVERS.

To the Editor of THE LANCET.

SIR,—Mr. G. Adkins in his letter on March 2nd concerning the recent outbreak of poliomyelitis at Stoke Rivers criticises the statement made in your issue of Feb. 17th, "that among the whole 36 cases there is not a single case of definite poliomyelitis." Mr. Adkins refers to Dr. Reece's paper in the Epidemiological Section of the Royal Society of Medicine for further details. On reference to this other paper I find the statement: "In this community of 119 persons there were 36 attacks of poliomyelitis which were more or less definite, although *only three developed paralysis*, two suffered from facial paralysis, and one, a lad aged 17, remains paralysed in both legs. In addition to the 36 there are nine others who may possibly have suffered in a minor degree." This does not furnish much additional information.

Your article said, "Before accepting this epidemic as one of poliomyelitis far more proof would be required." Possibly Mr. Adkins has this proof, and if so it would be extremely interesting if he would furnish a complete account of the Stoke Rivers epidemic, with a note on the present condition of the patients remaining paralysed.

It is unfortunately not possible to carry out the serum test for poliomyelitis on these patients owing to the absence of experimental animals in this country, though this might be done in France, Germany, or Austria. Such a test would at once decide if the cases above referred to were due to the virus of poliomyelitis.

I am, Sir, yours faithfully,

M.D.

March 4th, 1912.

NATIONAL IDEALS.

To the Editor of THE LANCET.

SIR,—In your review of "New Tracts for the Times" last week you refer to Dr. Horton's discussion of National Ideals. For the main purport of this theme, has at any time the relation of the nation to the Empire been better expressed than by Claudian, in those wonderful lines where he deals with the relation of Rome to her Empire?

> Haec est, in gremium victos quae sola recepit,
> Humanumque genus communi nomine fovit,
> Matris, non dominae ritu; civesque vocavit
> Quos domuit, nexuque pio longinqua revinxit.

"This is she who alone took the vanquished to her bosom and cherished all mankind by one common name, ruling them as mother, not as mistress, who named those whom she conquered citizens, and bound them to her for ever in the bond of righteousness." This, be it remembered, was written by one of the conquered.—I am, Sir, yours faithfully,

OXONIENSIS.

March 11th, 1912.

THE POPLAR MEDICAL UNION.—Dr. C. K. Toland, the secretary of this union, has informed the members by circular that a voluntary committee, not wholly medical, has agreed to provide medical treatment for school children in Poplar under the London County Council scheme, a course that is in opposition to a scheme drawn up by the joint committee of the Metropolitan Division of the British Medical Association. Dr. Toland's circular appeals to the members not to accept service under the voluntary committee.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The Royal Hospital for Sick Children and Women, Bristol.

THE annual meeting of the subscribers of this institution was held on March 4th under the presidency of the Lord Mayor. The medical report stated that during 1911 the out-patients numbered 4656, and 77 women and 730 children had been admitted as in-patients, an increase compared with 1910. The financial statement showed that the income amounted to £4683, and that the expenditure was £5205. The committee in its report alludes with regret to the death of Dr. John Beddoe, who had been connected with the hospital since 1866, and adds "that the committee was always proud of the connexion between the hospital and one who had made a world-wide reputation."

The Exeter Education Committee.

The school hygiene subcommittee has recommended the Exeter education committee to appoint a surgeon-dentist at a salary of £250 per annum to treat the teeth of school children, and suggested that premises and equipment for his use should be provided at an expenditure of about £60. It further recommended that about £100 should be expended on the treatment of ringworm. At the meeting of the committee held on Feb. 28th it was decided, after some discussion, to adopt the proposal of the subcommittee.

King Edward VII. Memorial Dispensary, Plymouth.

The first annual meeting of the subscribers of the Didworthy Tuberculosis Dispensary, Plymouth, was held last week, under the presidency of Dr. R. Hogarth Clay. The medical report stated that during the year 320 patients had been treated. The medical officer (Dr. C. D. Lindsey) stated "that he had given tuberculin in a small number of cases, and while he was not able to point to any great success so far, he was sure benefit had resulted in a certain number of cases." The financial statement was unsatisfactory, and Mr. Cecil Wills, who presented the figures, said that unless more subscriptions were received the dispensary would have to be closed. It was decided that in future the institution should be called the "King Edward VII. Memorial Dispensary."

The Royal Cornwall Infirmary, Truro.

The late Mr. T. L. Dorrington, of Truro, has bequeathed about £6500 to the Royal Cornwall Infirmary, for the establishment and maintenance of a convalescent home for females at Perranporth. The institution is to be called "The Dorrington Home," and is to be worked on similar lines as the Passmore Edwards Convalescent Home for Men at Perranporth, which is also in connexion with the Royal Cornwall Infirmary.

March 12th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Morison Lectures: Royal College of Physicians, Edinburgh.

THESE lectures were delivered in the hall of the Royal College of Physicians on Feb. 26th and 26th and March 1st. The lecturer this year was Dr. J. J. Graham Brown, who had selected for his theme "Certain Aspects of Aphasia." The subject was dealt with in great detail, and yet most lucidly and interestingly. There was a good and appreciative audience at each of the lectures. The lectures are to be published, and will prove a valuable contribution to the literature of the subject dealt with, for they will be found to bring much scattered knowledge together, carefully sifted, analysed, and arranged, and suitable for practical clinical application.

Professor Simon Flexner in Edinburgh.

Professor Flexner, of the Rockefeller Institute, New York, Cameron Prizeman in Therapeutics of the Edinburgh University, lectured in the M'Ewan Hall of the University on March 4th to a large audience of students, professors, and other members of the profession. The lecturer took for his subject "Specific Local Therapeutics of Infection," dealing mainly with the serum treatment of epidemic cerebro-spinal meningitis. On the following day he delivered a clinical lecture to the combined university and extra-mural students of clinical medicine in the large theatre of the Royal Infirmary. The theatre was crowded. The lecturer discoursed on acute anterior poliomyelitis.

Appointment of Assistant Physician to the Edinburgh Royal Infirmary.

The managers of the Edinburgh Royal Infirmary at their meeting on March 4th appointed Dr. John Eason to be an assistant physician. A vacancy occurred because Dr. Byrom Bramwell's term of office as a full physician has expired. There were seven candidates, and the contest has been a very keen one.

Scottish Medical Insurance Council.

This body was to have had its first meeting on March 15th, but it has had to be indefinitely postponed owing to the disorganisation of the railway service consequent upon the coal strike. Meantime the lull in insurance matters of necessity continues.

Disjunction of Montrose Royal Infirmary from the Royal Asylum.

In view of the disjunction of Montrose Royal Infirmary from Montrose Royal Asylum, owing to the introduction of a new charter for the asylum, the special committee appointed by the asylum and infirmary board represented to the representatives of the district lunacy boards and parish councils of Forfarshire and Kincardineshire that a capital sum of £10,000 would be required to yield a sum of £350, the amount of an annual grant from the asylum to the infirmary. The petitioners for popular representation on the board, however, submitted an offer of £9350 cash down, in lieu of all rights of the infirmary in the corporation, and after conference the special committee recommended yesterday to the managers of the board the acceptance of that sum. The meeting unanimously approved the action of the committee.

Handsome Donation to Brechin Infirmary.

A sum of £5000 has been handed to Brechin Infirmary by the trustees of the late Mr. David Jamie.

Fire at the Aberdeen Royal Asylum.

An alarming outbreak of fire took place at the Aberdeen Royal Asylum last week and did considerable damage to the buildings. About 4 o'clock in the morning the night fireman discovered that part of the woodwork at the rear of the engine room had become ignited. In a few seconds a considerable area of the roof was in a blaze. The asylum horn was blown, calling out the fire brigade in the institution. The hydrants and other extinguishing appliances were brought into operation, and soon an impression was made on the flames. The city fire brigade had also been telephoned for, and the combined action of the brigades soon had the flames completely extinguished. The damage amounts to £200, and fortunately there was no damage done to the engines. From the engine-rooms the asylum is heated, and the means of cooking are also supplied from it, while the electric switchboard is also situated in the buildings. Dr. W. Reid, interviewed after the fire, said that the precautions provided against fire in the Royal Asylum were so complete that it was practically impossible for any outbreak to assume serious dimensions. The demonstration given by the staff in dealing with the outbreak was sufficient evidence of the safeguards provided for the absolute safety of the inmates. There had been no alarm amongst the patients, and few of them knew that anything unusual had happened till several hours after.

Aberdeen Medical Men and the National Insurance Act.

A provisional medical committee has been chosen for the burgh of Aberdeen to deal with contract practice in the city and other matters relative thereto. Dr. J. Munro Moir (Inverness) was nominated for membership of the Advisory Committee, which is to meet the Joint Insurance Commissioners in London.

Aberdeen Royal Infirmary.

The newly elected board of directors of the Aberdeen Royal Infirmary met on Feb. 29th. Mr. George M. Cook was unanimously elected chairman of the board for the ensuing year. Miss Elizabeth Edmonston, matron of the Becket Hospital, Barnsley, Yorkshire, was appointed matron of the infirmary in room of the late Miss Macnaughton. Intimation was given of a legacy of £1000 to the infirmary by the late Mr. David Jamie.

March 11th.

RINT IN BINDING

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Substitute's Fees in the Poor-law Service.

THE amount of remuneration to be paid to a medical man doing duty as locum-tenent in the Poor-law service gives rise to many wrangles. The difficulty arises from the fact that the onus is put on the relieving officer of providing a substitute when there is necessity, while the Local Government Board does not permit him to make a bargain binding on the guardians. In a recent case Mr. W. R. G. Hamilton, of Edenderry, accepted duty, having been assured of remuneration at the rate of a guinea a day by the relieving officer, but the Local Government Board refuses to sanction payment at that rate.

Professorship of Surgery in the Royal College of Surgeons.

The Council of the Royal College of Surgeons is about to make the appointment of a Professor of Surgery. Like the other professors, his appointment is subject to annual re-election, but with the proviso that he shall not hold office for more than five years.

Medical Man's Life on the Aran Islands.

Probably few medical men in the Kingdom have a more adventurous life than the dispensary medical officer of the Aran Islands, situated in Galway Bay. There are three inhabited islands, and the only means of navigation from one to the other is by the "curragh," or hide-boat, a frame of wood covered by stretched cow-hide or canvas. One afternoon recently, at about 5 o'clock, the medical officer at Kilronan received a wire requesting his services immediately in a maternity case at Innismaan. Although sky and sea looked threatening, he succeeded in procuring a boat's crew, and set out in a curragh to cross the four and a half miles of storm-swept sea. After considerable difficulty Innismaan was reached and the boat was got ashore by the aid of willing islanders. Halfway across on the return journey the storm became a hurricane, and the craft was at the mercy of the waves. The doctor and crew gave themselves up for lost, but happily some trawlers were at anchor, and to these the crew held fast waiting for a lull. From that evening to the following Friday no curragh or steamer called at the island or left it.

Royal Victoria Hospital, Belfast: Resignation of Dr. Walton Browne.

At a meeting of the board of management of the Royal Victoria Hospital, Belfast, held on March 6th, a letter was read from the senior surgeon, Dr. J. Walton Browne, resigning his post. Dr. Browne, who has been surgeon to the institution for a period of over 36 years, was then appointed consulting surgeon to the hospital, a special resolution being passed thanking him for his valuable services and deeply regretting his resignation. Mr. Robert Campbell, assistant surgeon, will, it is believed, be promoted without a contest to the vacant surgeoncy, and for Mr. Campbell's position there is a keen canvass among four of the younger medical men of the Belfast Medical School.

The Newry Hospital.

At a meeting of the committee of this hospital on March 11th, the Earl of Kilmorey, K.P., presiding, a resolution was passed expressing regret at the retirement of Mr. B. Beamish as medical officer, and passing a cordial vote of thanks to him for his valuable services to the hospital during 18 years. The successor to Mr. Beamish is to be paid the same salary, £100, and the election will take place on April 11th.

March 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Antivenomous Serum in the Treatment of Scorpion Stings in Children.

IN the regions of Ben Gardane and Zarzis scorpion stings often assume a particularly dangerous character. From 1906 to January, 1911, inclusive, Dr. Lefèvre, assistant médecin-major, has collected from the mortality statistics of the Sud six deaths due to this cause. Of the six children two received no attention for their injury; the rest were treated with injections of permanganate, or hypochlorite of sodium, or by cauterisation with zinc chloride. One of them had even received an injection of antivenomous serum. Having personally witnessed two fatal cases and being struck by the inefficiency of the local mode of treatment, Dr. Lefèvre injected 10 c.c. of Calmette's antivenomous serum into all the patients irrespective of their condition. The injection was always made between one hour and three hours after the sting. Not one out of eleven patients thus treated showed any signs of poisoning. This can hardly have been all a matter of coincidence. He concludes that in all cases of scorpion stings in children the injection of antivenomous serum ought always to be practised as soon as possible in association with the local method of treatment by cauterisation. Cauterisation, indeed, is often a matter of difficulty, for the patient is frequently incapable of indicating precisely the part stung, the mark is often imperceptible, and there is thus danger of cauterising the wrong place.

The Horace Wells Prize.

A prize of 500 francs is offered, to be adjudged in 1915, to the author of the best essay dealing with a notable improvement in the present methods of surgical anæsthesia, or to the discoverer of an approved anæsthetic agent or to the inventor of apparatus, procedures, or methods markedly facilitating narcosis. Essays must be addressed to M. Quincerot, president of the Comité Horace Wells, 28, rue de Moscou, Paris. No restriction is placed as to the profession or nationality of the candidates, but all the essays must be written in French and signed with a motto or device, the names and addresses of the authors being enclosed in a sealed envelope bearing the same device as their respective essays.

Aluminium Apparatus for Fractures of the Limbs.

M. Raoul Deslonchamps showed at the Société de Médecine de Paris on Feb. 24th some apparatus in sheet aluminium for the treatment of fractures of the limbs. Since aluminium is permeable to the X rays it is possible to control by radioscopy the exact position of the bony fragments. If they are in bad position the author uses small bags of indiarubber into which air is forced, thus exercising where required a pressure that is easily borne.

Sanitary Measures in Parliament.

A new party has been formed and has opened a provisory bureau in the Chamber of Deputies to aid the struggle against tuberculosis. This body has examined the legislative measures to be undertaken to combat tuberculosis, among others the organisation of instruction on tuberculosis, the establishment of cheap markets, and the necessity for notification. The anti-alcohol party in the Chamber of Deputies has also met under the presidency of M. Joseph Reinach. It urges that the Hygienic Commission should bring before the Chamber at the earliest moment possible a measure for the total suppression of absinthe, and should again present a measure to limit the number of places for the retailing of intoxicants.

The French Committee for the next International Congress of Medicine in London in 1913.

A preparatory meeting of the French committee took place on March 3rd in the great amphitheatre of the Faculty of Medicine of Paris under the presidency of Professor Landouzy, *doyen* of the Faculty of Medicine. Each of the 22 French sections nominated its bureau for the forthcoming congress. The presidents, vice-presidents, and secretaries were appointed and will proceed to prepare the lists of subjects in their respective sections to be presented to the Congress. There was a large attendance at the meeting, giving rise to the hope that the French participants in the congress will be numerous, and will include the greatest names in French medicine. The Bureau of the French Committee of Organisation consists of Professor Landouzy, president; Professor Debove, Professor Hayem, Professor Reclus, and Professor Lucas Championnière, vice-presidents; Dr. Raoul Blondel, secretary-general; and M. Piere Masson, treasurer.

An Army Consultative Sanitary Committee

M. Millerand, the Minister of War, has modified the name and composition of the sanitary committee attached to the Ministry of War. The successive decrees of 1882, 1888, and 1901, not being in absolute accordance, give it an irregular character. Moreover, of the members composing the committee two did not belong to the sanitary service, but were borrowed from other arms or services, and only one member

belonged to the Sanitary Corps of the colonial troops. Henceforth, the Sanitary Committee will revert to its former and true title of Consultative Sanitary Committee and will no longer admit outsiders. The number of medical inspectors of colonial troops on the committee is to be raised from one to two. This measure will provide for the sanitary service of these special troops a representation more in accord with its importance. The committee will thus consist of 11 members, of whom eight at the most will be selected from the medical inspectors general or medical inspectors of the corps of military sanitation, and two at least from those of the sanitary corps of the colonial troops in addition to the pharmacist inspector of the Sanitary Military Corps.

March 11th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

The Surgical Treatment of Phthisis.

Professor F. Sauerbruch, who has occupied the chair of surgery at the University of Zürich since the death of Professor A. Krönlein, has published a paper on the Surgical Treatment of Phthisis. The operative treatment of tubercular cavities of the lung has hitherto been anything but encouraging. According to Dr. Tuffier's statistics only 1 patient out of 27 was healed; most of them died rapidly. Runeberg later reported on about 19 fatal cases. In 1888 Quincke and Carl Spengler, independently of each other, proposed mobilising the diseased lung by resection of several ribs. Several cases were successfully operated on by Carl Spengler, Bier, Landerer, Turban, and von Mikulicz. Chondrotomy, a new method proposed by Freund, has been performed only seven times. Forlanini and Murphy introduced operative pneumothorax, with Brauer seconding them.[1] The Davos doctors have reported satisfactorily on the results provided that the other lung was not extensively diseased. Professor Sauerbruch reports on his experiences with thoracoplasty as introduced by Friedreich in advanced cases of phthisis. Rapidity and operation *à deux temps* are absolutely necessary in view of the feeble condition of the patients and the danger of fatal collapse. Professor Sauerbruch has performed 50 operations on 32 patients, of whom only 1 succumbed to the operation; 8 were suffering from bronchiectasis, and 24 from phthisis. Two patients died respectively four and nine months after operation; 2 were cured, 2 almost cured, the rest improved more or less. The method recommends itself for very severe cases with one-sided localisation where climatic, dietetic, and medicinal treatment cannot effect a cure.

Severe Hæmorrhage from an Ovarian Cyst.

Dr. Tschudy, surgeon to the Theodosianum Hospital at Zürich, reports a case of severe hæmorrhage from an ovarian cyst, which simulated appendicitis. He has previously read a paper on two similar cases before the Zürich Medical Society in 1910. A patient, aged 32, was seized with severe abdominal pain at 9 A.M. on Sept. 23rd, 1911, which disappeared after a couple of hours. Acute return at 3 and 8 P.M. On admission to the hospital at 9 P.M. the pain was still acute and localised above the symphysis pubis. Temperature 37·2° C. (99° F.), pulse 64. Pregnancy and a tubal hæmorrhage being excluded, the diagnosis of appendicitis seemed the most probable. Laparotomy revealed a considerable amount of blood in the abdomen and oozing from an ovarian cyst of the size of an apple. The adiposity of the patient had prevented this tumour being felt on examination. There were about 3 pints of blood in the abdomen. Uneventful recovery ensued and the patient was dismissed from hospital after three weeks. Such cases are very rare. Bürger reported one in the *Zentralblatt für Gynækologie* in 1904. As in other cases of abdominal hæmorrhage, the pulse-rate was low.

Zürich, March 11th.

[1] THE LANCET, vol. ii., 1911, pp. 145, 150-3, 233, 404, 474.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC.—The annual meeting of members and subscribers will be held at the college, 22, Chenies-street, W.C., on Friday, March 22nd, at 5.15 P.M., when Mr. James Cantlie will be in the chair.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Deaths of Medical Men in the United States and Canada.

In 1911, there were 2145 deaths among medical men in the United States and Canada, or, estimating that the number of medical men in these two countries to be 140,000, the rate was 15·32 per 1000. For the nine previous years the death-rates were as follows: 1910, 16·96; 1909, 16·2; 1908, 17·39; 1907, 16·01; 1906, 17·0; 1905, 16·36; 1904, 17·14; 1903, 13·7; and 1902, 14·74. The average annual mortality was 16·11 per 1000. The age at death varied from 23 to 99, with an average of 59 years and 10 months. The chief causes of death in the order named were: cerebral hæmorrhage, "heart disease," senility, pneumonia, external causes, and kidney disease.

Montreal Death-rate in 1911.

During the year 1911 there were 9974 deaths in the city of Montreal, 5110 males and 4864 females, thus giving a death-rate of 21·39 per 1000 of the population. This is 1·01 less than in 1910. The deaths of children under five years of age numbered 5355, being 53·69 per cent. of the general mortality, or a decrease of 0·50 per cent. over that of 1910. Measles claimed 74 in 1911, against 155 in 1910; scarlet fever, 76 against 118; diphtheria, 133 against 136; typhoid fever, 124 against 192; phthisis, 736 against 785.

Professor Adami.

Quite recently Dr. J. G. Adami, professor of pathology in McGill University, Montreal, was offered the chair of pathology in the Northwestern University, Chicago, U.S.A., which is better endowed. Canadians are exceedingly glad to learn that the services of Professor Adami are not to be lost to the Dominion. His loss would have been felt not only by McGill and Montreal but the entire country. Dr. Adami came to McGill in 1892 as professor of pathology. He was for three years pathologist to the Montreal General Hospital, and is now head of the pathological department of the Royal Victoria Hospital. He has always taken a leading part in public health matters, particularly in the campaign against tuberculosis.

Hebrew Tuberculosis Hospital for Montreal.

Recently a week was set aside by the Hebrews of Montreal to conduct a campaign for $25,000 necessary for the annual maintenance of the Mt. Sinai Sanatorium. Some time ago the Hebrews of Montreal secured a site for a sanatorium near Ste. Agathe and plans for a new building were obtained. The farmhouse on the grounds served at first as a temporary hospital for urgent cases, but for lack of funds this had to be closed, and the patients placed in boarding houses. As soon as the maintenance fund is found a well-organised society will campaign for funds for the new building at a cost of $35,000. The results will tell what Jewish charity will do in the direction of fighting the "white plague."

Clinical Records of the Insane.

Dr. W. J. Robertson, superintendent of the Hospital for the Insane at London, Ontario, has recorded 500 consecutive admissions to this institution from Jan. 1st, 1908, to June 6th, 1910. Prior to this time no systematic attempt was made to obtain the life-history of each patient, no conferences of the staff were held, no reports and no clinical notes were on record. Of the total 500 cases, 16 were admitted twice during the period above mentioned, so that 484 individuals are dealt with. The males were 251 and the females 233. Family history: In 153 cases, or 31 per cent., insanity was reported as having occurred in some relative. In 40 cases, or 8·26 per cent., alcoholism in some member of the family is reported, and in 17 of these cases alcoholism and insanity were found combined. Personal history: In 57, or 11·7 per cent., a history of alcoholism was found, the patients not being confirmed alcoholics, but having drunk to excess at some period of their lives. In only 10 cases was a history of syphilis found (Wassermann reaction not taken). Of the dementia præcox cases, 89, or 44·5 per cent., were discharged recovered or improved; 13, or 6 per cent., died; 91, or 45 per cent., still in residence. Of the manic-depressive insanity, 50, or 83 per cent., were discharged as recovered or improved; 2, or 3·3 per cent., died; 7, or 11 per cent., still in residence. Melancholia

IN BINDING

vera, 17, or 56 per cent., recovered or improved; 6, or 20 per cent., died; 6, or 20 per cent., still in residence. Seniles: 14, or 23 per cent., discharged improved; 18, or 30 per cent., died; 23, or 39 per cent., still in residence. General paralysis: 3, or 15 per cent., discharged improved (remission); 13, or 65 per cent., died; 3, or 15 per cent., in residence. Alcoholism: 11, or 91 per cent., discharged recovered or improved; 1, or 9 per cent., still in residence. Summary: 233 cases, or 48 per cent., have been discharged as recovered or improved; 8 discharged as unimproved; 67, or 13 per cent., have died; 5 eloped; 4 were transferred; 5 were deported; 162, or 33 per cent., are still in residence.

New Hospital Journal in Toronto.

Dr. W. A. Young, publisher of the *Canadian Journal of Medicine and Surgery* at Toronto, has launched a new hospital journal, *The Hospital World*, which is to be an international hospital medium, with head office in Toronto, and branch offices in Buffalo, N.Y., U.S.A., and London, England. The first number was issued in January, and is a very creditable production. It is understood that Dr. J. N. E. Brown, late superintendent of the Toronto General Hospital and secretary of the American Hospital Association, will shortly assume editorial control.

Tuberculosis Sanatoriums in Newfoundland.

The sons of Sir R. G. Reid, St. John's, Newfoundland, have offered to the Government of Newfoundland to equip a building in St. John's to be used as a sanatorium or hospital for the treatment of tuberculosis on condition that the Government provides a suitable site. In a letter to the Premier of Newfoundland, Sir E. P. Morris, Mr. W. D. Reid, the president of the Reid Newfoundland Company, states that he estimates this will cost $50,000. In addition to this Mr. Reid states that his brothers and himself will, on sites provided by the Government, build, furnish, and equip in each of the 16 extern electoral districts of the island a sanatorium or hospital for the same purposes, but smaller in size and estimated to cost about $3000 each, or $50,000 altogether, which, when fully equipped, along with the institution for St. John's city, will be handed over to the Government unconditionally for management and control. When established these sanatoria will be known as "The Reid Sanatoria."

The Needs of Asylum Medical Officers.

The board of management of the Protestant Hospital for the Insane at Verdun, Quebec, have forwarded a memorial to the government of that province asking that consideration be given to a scheme of pensioning medical officers after a sufficient length of time in the asylum service. This memorial points out that owing to the increased number of insane in Quebec more and more medical officers have additional onerous work thrust upon them. It is also pointed out that the salaries of the medical service of these institutions are inadequate to provide for the officers making provision for the future, and that while their duties are very arduous they are also often dangerous. Physicians to these institutions should be placed on a plane with other ranks of the civil service in which pensions are granted.

March 1st.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Women and the Medical Profession in India.

IN order to encourage women desirous of entering the medical profession to study for the M.B. and C.M. degree of the Madras University, the Madras Government has resolved to award annually three stipends of 25 rupees per month to young women who undertake to study for their degree. The stipends will be allotted each year by the Provincial Committee of the Countess of Dufferin Fund, and may be awarded either to students who have already passed the intermediate examination in arts or those who are reading for it. The maximum tenure of stipend will be seven years. The Government is also of opinion that as a further inducement to obtain these higher qualifications enhanced salaries should be given those possessing it. The salaries range from 100 to 200 rupees, with the allowance ranging from 25 to 50 rupees, when the holders of qualifications are in independent charge.

An Incident in Anti-malarial Measures in India.

The following true story of the well-meaning manager of a tea estate in Sylhet may interest your readers. He was greatly concerned that his coolies should escape the ravages of malaria, and posted himself in all the literature on the subject, from Laveran to Bentley. He waged relentless war on every species of mosquito, and then started to make his people immune. On pay days, as each coolie came up for his pay, he administered a five-grain dose of quinine, which the coolie had to swallow on the spot. One night after this treatment he was summoned to the lines to see a coolie who was suffering from severe cinchonism. He could make nothing of the case and sent post-haste for the district doctor. "What have you been giving him?" asked the medical man. "Quinine," replied the planter. "How much?" "Five grains." "Nonsense, man, he must have swallowed fifty to be afflicted in this way." And so it turned out. The coolie had come up again and again to the pay office to draw the pay of certain absentee friends and had taken the quinine each time without a murmur, so as not to upset the sahib.

Feb. 14th.

Obituary.

CHARLES PARNHAM SKRIMSHIRE, M.R.C.S. ENG., L.S.A.

Mr. C. P. Skrimshire, late medical officer of health of the Brynmawr urban district and the Llanelly rural district, died from cerebral hæmorrhage at his residence, "Sandhaven," Weston-super-Mare, on Feb. 22nd, in his sixty-eighth year. He was the son of the late Mr. George Skrimshire, surgeon, of Holt, Norfolk, and received his medical education at St. Bartholomew's Hospital, where he was senior scholar in 1869. In the same year he took the "College and Hall," and shortly afterwards commenced practice in Blaenavon, Mon. He held many public appointments, being senior surgeon to the Blaenavon iron works, medical officer of health for the Brynmawr urban and the Llanelly rural districts, medical inspector under the Factories Act at Blaenavon, and public vaccinator for Brynmawr. Mr. Skrimshire was an ardent Freemason, and had been Master of the Kennan Lodge. He was a distinguished Volunteer, and had been brigade-surgeon of the South Wales Infantry Brigade, and was granted the Volunteer Decoration for long service.

He was very popular in Blaenavon, and had been president of the Eastern Valleys Medical Association. Mr. Skrimshire lately retired from active work and had taken up his residence at Weston-super-Mare, where he was highly respected, especially by the poor, to whom he was most generous; and much sympathy is felt for his widow and children. The funeral took place at the Weston cemetery on Feb. 26th, the service being performed by the Rev. C. Hodder, assisted by the brother of the deceased, the Rev. Canon Skrimshire.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. F. Zachrisson, lecturer on surgery in the University of Upsala.—Dr. E. G. A. Landergren, lecturer on physiology in the Stockholm Medical School.—Dr. A. Negri, *privat-docent* of General Pathology and Bacteriology in the University of Pavia.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At a recent meeting in connexion with St. Mark's branch of the St. John Ambulance Association, Liverpool, Mr. Percy Gordon Sheppard, L.M.S.S.A. Lond., was presented by the members with an inlaid ink-stand as a mark of their appreciation for his services as honorary instructor.—At a recent meeting in Padstow the Hon. Mrs. Prideaux Brune, on behalf of the Padstow (Cornwall) "Ladies' First-aid and Home Nursing Class," presented Mr. Frank Harvey, M.R.C.S. Eng., L.S.A., with a handsome pair of old Sheffield plate candlesticks as a mark of appreciation for his services as honorary lecturer

THE NATIONAL INSURANCE ACT.

THE GENERAL MEDICAL COUNCIL AND THE COMMISSIONERS.

AT the last meeting of the Executive Committee of the General Medical Council the President, Sir Donald MacAlister, reported upon the communications which had passed between the Assistant Secretary of the Joint Committee of the National Insurance Commissioners and the Registrar of the Council with reference to the proposed conference on Feb. 2nd between the Commissioners and representatives of the medical profession. The President said that before replying to the Commissioners' invitation he consulted with the members of the National Insurance Bill Committee of the General Medical Council and with the authorities at the Privy Council Office. It will be remembered that the answer sent by direction of the President on Jan. 30th explained that since the Council would not meet before June, nor its Executive Committee before the end of February, it was impracticable to procure the formal appointment by the Council of six representatives to confer with the Insurance Commissioners on Feb. 2nd. The letter added that the Council would, however, give its best consideration to any communication transmitted to it by the Commissioners and would be ready to afford them such information as they might require on matters lying within its province.

MEMORIAL FROM THE WIVES OF PRACTITIONERS.

The Executive Committee of the General Medical Council also received a memorial with regard to the National Insurance Act from the Doctors' Wives Defence Movement, Manchester. This memorial was sent in response to an intimation that the Council would be prepared to receive petitions presented in accordance with the standing orders. It was prefaced by a statement by the honorary secretary, Mrs. Thomas Gregory, on the effect of the Bill upon the wives, families, and dependents of medical men. The memorial received 836 signatures in three days and was worded as follows:—

> We the undersigned, wives of duly registered medical men of Manchester, Liverpool, Oldham, Blackburn, and other towns and places in England and Wales, desire to present to the President and Members of the General Council of Medical Education and Registration of the United Kingdom this protest against the National Insurance Bill as at present framed. We would urge you to give the following statements your careful and deliberate consideration as adversely affecting our interests. The Bill will cause decided loss of income, while creating greater demands upon our resources, thus giving rise to reduced education for our children, reduced life insurance, loss of goodwill or practice value. The Bill offers no provision or compensation against such losses. Our grave anxiety is for the welfare of our children, as it would mean in many cases absolute destitution for the wife and children in the event of a husband's incapacity or death.

THE MEDICAL FEDERATION.

The Medical Federation, Limited, whose provisional registered office is at Lion Chambers, Broad-street, Bristol, has issued a circular letter to medical practitioners, which states that the time has now come when members of the medical profession must, in their joint and several interests, unite, and that the success of any scheme to protect the interests and to guarantee the fair treatment of the profession, both now and in the future, can only be ensured by unanimous and concerted action. For this purpose any organisation which is formed must be not merely a local but a national measure; in fact, a federation of all medical practitioners. The circular alleges that although the British Medical Association already exists to protect the interests of the profession, for various reasons it has never in the past succeeded in adequately safeguarding its members. It can give no guarantee of protection to its members other than one conditional upon the support obtained by a voluntary subscription list, and a perusal of its Memorandum will show that no power is reserved to use this fund to indemnify or compensate its members. The Association has for years been striving to obtain the necessary powers, but the only way in which it can do so is by coöperation with an existing body which has those powers. For this reason the Medical Federation, Limited, has been formed with the most ample powers, and the fact is emphasised that the company is formed in no spirit of hostility or opposition to the British Medical Association, but with the express object of strengthening its weak points—of being its complement. The purpose of the company is to secure the fair treatment and protection of the members of the medical profession, to ensure adequate remuneration for their services, to oppose the passing of legislation hostile to them, and generally to safeguard their interests with due consideration for the rights of the public. The present directorate is provisional only. The members of the company will elect their own directors out of their own number, and every member will be represented on his local or district committee, as well as in the central governing body. The entrance fee is £2 2*s*. and the annual subscription 25*s*.

Certain points in the Medical Federation's circular have been considered by the newly formed State Sickness Insurance Committee of the British Medical Association. The statement that the Association "could give no guarantee of protection to its members other than one conditional upon the support obtained by a voluntary subscription list" has been referred to counsel, and the Association has been advised that the Association's Defence Fund can be lawfully used for indemnification and compensation. Representatives of the Federation have, we understand, been invited to attend the next meeting of the State Sickness Insurance Committee for the purpose of clearing up misapprehensions and defining the relations between the two bodies.

Medical News.

ROYAL SOCIETY OF ARTS.—At a meeting of the Royal Society of Arts held on March 6th, with Mr. James Swinburne in the chair, Mr. T. Thorne Baker read a paper on Some Modern Problems of Illumination. Almost at the outset he spoke of the differing biological effects produced by various parts of the spectrum, as proved by the luxuriant growth of certain bacteria in the two regions corresponding to the chlorophyll bands, the remainder of the spectrum being practically destitute of those organisms. He then said that the preference of many families of bacteria and also of yeast for certain colours tended to show that the artificial light employed for the habitations of human beings should presumably resemble that to which they were normally accustomed, and should, therefore, be spectroscopically equivalent to the daylight derived from white clouds. Mr. Baker here described in much detail the analysis of illumination by spectro-photography and the methods of preparing screening filters by means of which two dissimilar illuminants may be made to resemble one another in their effects. For this method of analysing light the concave grating spectrograph was superior to the prism spectrograph, because in the former the dispersion throughout the spectrum was proportional to the wave length, whereas in the latter the green, yellow, and red regions were all cramped up together, and therefore tended to appear far more luminous than actual measurement showed them to be. Two forms of spectro-photometer were also described, as well as a contrivance for use in industrial work where colour-mixing or matching was part of the ordinary routine, with the result that standard daylight illumination was available for working by in all weathers and by day or night. A number of metal filament lamps (usually tungsten) were fixed in the top of a box, the bottom of which was formed by a gelatin-on-glass screening filter. After passing through this filter the rays were diffused by a piece of ground-glass, and then fell on the table where the work of mixing or matching colours was in progress. Mr. Baker here suggested that this method of imitating normal daylight would be useful in the illumination of art galleries and picture exhibitions. For this purpose incandescent tungsten filaments were the best source of light; it was unlikely that normal daylight could ever be matched with the illumination from a mercury vapour lamp. The Moore and Cooper-Hewitt lamps were probably only the forerunners of many other lamps depending on the luminosity of electrically excited gases, notably neon and helium. Pure neon was exceedingly luminous when subjected to high tension electrical discharges, and M. Claude claims to be able to produce in a day 100 litres, which would suffice for the manufacture of 1000 tubes of neon of 1000 candle power each. The tubes at present made for commercial purposes must be supplied with alternating current. The lighting power is about 200 candles per metre of tube, and the consumption of electricity for the luminous portion of the tube is about 0·45 watt per candle. Neon rays are a rich golden red. Rarefied pure helium gas gives an intense light

TIGHTLY BOUND

of whitish-yellow hue, somewhat similar to that of the flame of some of the lighter burning oils. Helium vacuum tubes 7 centimetres in length and 2 millimetres in bore, with terminal bulbs containing aluminium electrodes 25 millimetres in diameter, have quite recently been adopted by the Bureau of Standards at Washington as the standard unit of illumination.

A CONVERSAZIONE will be held at the West London Hospital, Hammersmith, on Wednesday next, March 20th, at 8.30 P.M., when the staff of the Post-Graduate College will be "at home" to their friends.

NEW CHILDREN'S HOSPITAL FOR VIENNA.—A wealthy Viennese Jew, David Ritter von Gutmann, has given the Jewish community 3,000,000 kronen (£120,000) to build a hospital for children. This is to be ready for occupation within two years.

MEDICAL SOCIETY OF LONDON.—The 139th anniversary dinner of this society was held on March 6th at the Whitehall Rooms, Hotel Metropole, under the chairmanship of Dr. J. Mitchell Bruce, the President. There was a large and distinguished gathering, and the guests included the presidents of many sister societies and associations. The chairman, in proposing the toast of the evening, touched briefly on the long history of the Medical Society of London, and congratulated it upon the keenness and earnestness of its debates and the success of its less formal clinical evenings. He paid a tribute to Dr. A. E. Garrod's Lettsomian lectures, and referred to the loss which the society had sustained by the death of Pavy, Hughlings Jackson, Allchin, and Lister, who all had been office-bearers. Mr. J. Bland-Sutton replied in a humorous speech which much amused his audience. He related the case of a rhinoceros with intestinal obstruction which did not yield to an ounce of croton oil in a bun, but was relieved by an enema containing a pint of castor oil and a bottle of whisky in six gallons of soap and water. The result was immense, and the beast survived for 23 years. Dr. T. B. Hyslop proposed the health of the guests and kindred societies, and told some good stories. The reply was entrusted to Mr. Rickman J. Godlee, President of the Royal College of Surgeons of England, and Lieutenant-Colonel Sir William Leishman, R.A.M.C., President of the Society of Tropical Medicine and Hygiene. Mr. Godlee announced that it was Lister's wish that his medical books should pass into the possession of the Medical Society. Sir William Leishman said that he represented the youngest of medical societies, which, however, had already a membership of 606. In his opinion the multiplicity of such societies showed that medical men were gregarious. The health of the President was very warmly proposed by Sir Lauder Brunton, and the toast was received with musical honours. Dr. Mitchell Bruce, in his reply, asked the company to drink the health of the honorary secretaries, and Dr. J. W. Carr and Mr. Edred Corner each responded before the close of a most successful evening.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Medical Treatment of School Children.

A SUM of £60,000 appears in the Education Estimates this year for the medical treatment of school children. This is the first time that such a grant has ever been proposed by the Board of Education, but the authorities there have come to the conclusion that if the medical inspection of school children is to be attended with the most fruitful results medical treatment must be combined with it. On Thursday, March 7th, Mr. WHITEHOUSE, in the course of a debate on the vote on account, asked the representatives of the Board of Education to explain their attitude on this subject. There were many engaged in education, he said, who felt that medical inspection of elementary school children was almost useless until it was made possible for medical treatment to be carried out at the schools and under the control of the authorities attached to the schools. Mr. TREVELYAN, the Parliamentary Secretary to the Board of Education, drew attention to the fact that £60,000 had been put down on the estimates for the purposes of medical treatment. He mentioned that regulations would issued under which that sum would be spent, and he hoped that it would result in increased activity on the part of the local authorities in carrying out what both sides of the House regarded as a necessary expenditure to raise the standard of the health of school children.

Employment and Superannuation of Asylum Officers.

Several Bills dealing with the position of asylum officers are before the House of Commons. The one which was recently introduced by Lord WOLMER not only seeks to amend the Asylum Officers' Superannuation Act, 1909, but proposes to limit the hours of employment of officers and servants in asylums. The terms of the Bill are identical with the amended text of last year's measure. As was noted at the time, the Select Committee of the House of Commons came to a compromise. The Bill, whilst allowing for elasticity in administration and for emergencies, proposes to institute a maximum 70 hours week for asylum attendants. The Bill further gives to female established officers or servants of the first class a right to superannuation after 25 years' service. Clause 6 lays down that the power of the visiting committee to remove an officer or servant shall not be delegated to any officer, but general rules "may provide for enabling the medical superintendent or any other person specified in the rules to suspend any officer or servant from the service of the asylum pending the decision of the visiting committee as to whether he shall be dismissed or not."

Sir CHARLES NICHOLSON has introduced an Asylum Officers' Superannuation Bill which differs in certain respects from the measure brought forward by Lord WOLMER. It does not deal with the hours of asylum attendants, and the clause with reference to dismissals and suspensions does not find a place in it. It is therefore purely a measure dealing with superannuation. Sir CHARLES NICHOLSON has the support of Colonel LOCKWOOD, Mr. CROOKS, Mr. MILLAR, Mr. HARRIS, and Mr. NANNETTI in bringing forward his Bill.

Abolition of Vivisection Bill.

The object of Mr. LANSBURY'S Abolition of Vivisection Bill is to prohibit under heavy penalties experiments and demonstrations on live animals. The preamble of the Bill sets forth that "it is expedient to amend the law relating to cruelty to animals in the cases of animals which for medical, physiological, or pathological or scientific purposes, or for the purpose of testing former discoveries, or for the acquirement of manipulative skill, or for the illustration of lectures in medical schools, hospitals, colleges, or elsewhere are subjected to inoculations or to other experiments calculated to cause pain or suffering except for the purpose of curing or alleviating any injury or disease from which such animal is suffering." Clause 2 of the Bill lays down that "it shall not be lawful to subject any animal to vivisection, that is to say, to perform on any live animal with or without the use of anæsthetics, any experiment or demonstration or inoculation of a nature to cause pain or suffering to the animal, either directly or in its after-effects, for any pathological, surgical, physiological, or other scientific purpose, or for the acquirement of manipulative skill.

The Report of the Royal Commission on Vivisection.

The final report of the Royal Commission on Vivisection was issued to Members of the House of Commons on Tuesday, March 12th. The Commissioners say that, having regard to the witnesses who have appeared before them, there can be no doubt that the great preponderance of medical and scientific authority is against the opponents of vivisection. They come to the conclusion that experiments on animals adequately safeguarded by law and faithfully administered should not be prohibited by legislation. The recommendations of the Commission are summarised as follows:—

1. An increase in the inspectorate.
2. Further limitations as regards the use of curare.
3. Stricter provisions as to the definition and practice of pithing.
4. Additional restrictions regulating the painless destruction of animals which show signs of suffering after experiment.
5. A change in the method of selecting and in the constitution of the Advisory Board to the Secretary of State.
6. Special records by experimenters in certain cases.

There are reservation memoranda.

Vivisection of Dogs.

By a curious coincidence the publication of the report of the Royal Commission on Vivisection was followed on Tuesday evening by a discussion in the House of Commons on a motion dealing with the vivisection of dogs. Mr. MCKENNA, the Home Secretary, pleaded, however, the impossibility of any decision being arrived at on the matter until due consideration had been given to the report of the Royal Commission on Vivisection, and the House was counted out.

Naval Medical Service.

Mr. CHURCHILL, the First Lord of the Admiralty, in his statement explanatory of the Naval Estimates, referred to the recent changes in the organisation and conditions of service of the medical staff which had followed upon the recommendations of the Durnford Committee.

The General Medical Council's Accounts.

The accounts of the General Medical Council for 1911, and also those of the branch councils and of the Dental Registration Fund, have been presented to the House of Commons.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 6TH.

Holiday Feeding of Necessitous Children.

Mr. LANSBURY asked the Prime Minister whether he was aware of the suffering caused amongst tens of thousands of poor children by the inability of local authorities to incur the expenditure necessary to feed such children during holiday times; and whether, with a view to

putting an end to such suffering during the forthcoming holidays, he would arrange for sufficient time being given to allow the House to pass the necessary amending Bill to enable such feeding to take place.—Mr. ASQUITH answered: I am not aware that any Bill for this purpose is before the House. The Government, however, are prepared to give favourable consideration to the principle.

Sanatoriums in Scotland.

The Marquis of TULLIBARDINE asked the Secretary to the Treasury what proportion of the £1,500,000 available for the purpose of providing sanatoriums would be available for Scotland, and whether it would be allocated amongst counties and burghs on the basis of population, or whether it would be pooled.—Mr. MASTERMAN furnished the following written reply: In accordance with Section 64 (1) of the National Insurance Act, the proportion of the total sum available in accordance with that section for providing or maintaining grants to sanatoriums and other institutions which is allocated to England, Scotland, Ireland, and Wales respectively will depend upon their populations as shown in the Census of 1911. The allocation of the sum so available for Scotland will rest primarily with the Scottish Local Government Board, and I understand is now under their consideration.

Maternity Benefit under the Insurance Act.

Mr. ROWNTREE asked the Secretary to the Treasury whether under Section 8 (6) of the National Insurance Act an insured woman was entitled to sickness benefit in respect of her confinement for four weeks, even if she was not incapable of work during the whole of that period.—Mr. MASTERMAN wrote in reply: An insured woman will receive maternity benefit of 30s. on confinement. An insured married woman will receive sickness benefit for so long as she is incapable of work. The Factory and Workshop Act, 1901, prohibits the employment in a factory or workshop of any woman within four weeks after childbirth, but if the woman is certified to be incapable of work for a longer period she will continue to receive sickness benefit.

THURSDAY, MARCH 7TH.

Telephones and Tuberculosis.

Dr. C. ADDISON asked the Postmaster-General whether he had caused any inquiry to be made into the dangers which had been stated to arise from the use of telephones by persons suffering from open tuberculosis; and, if so, whether he was in a position to state the result of his inquiry.—Mr. H. SAMUEL replied: A prolonged investigation was undertaken by Dr. H. R. D. Spitta, at my request and has recently been completed. It extended not only to telephones used in public call offices, but also to certain telephones which were installed at a sanatorium for the regular and exclusive use of patients in all stages of tuberculosis. As a result Dr. Spitta reports that in his opinion "the transmission of tuberculosis through the medium of the telephone mouthpiece is practically impossible." I propose to issue a full statement to the press, as the subject is naturally one of considerable public interest.

Illness at Dartmouth Naval College.

Colonel BURN asked the Secretary to the Admiralty whether steps could be taken to ensure extra assistance at Dartmouth Naval College in times of excessive sickness, so as to prevent the hours of labour of the cadets' servants being unduly extended, as happened during a recent epidemic.—Mr. MACNAMARA replied: It is already the practice to provide for the exigencies of abnormal sickness by a temporary increase in the numbers of nurses and sick-berth ratings allowed to the Royal Naval College. On the occasion in reference, ten qualified female nurses were sent to Dartmouth and one additional medical officer. With regard to the suggestion that the hours of labour of the cadets' servants were unduly extended, the fact is that special arrangements had to be made for the employment of cadets' servants on night duty, each servant taking one hour's duty every fourth night for a period of 19 nights in all.

Medical Treatment of School Children.

Lord HENRY CAVENDISH-BENTINCK asked the President of the Local Government Board whether in cases where treatment of children was prescribed by school medical officers and the parent was unable, by reason of circumstances, to pay the cost of such treatment, the board of guardians was bound to provide such treatment for the child if it was not undertaken by the education authority; and whether he would by circular or otherwise, call the attention of boards of guardians to their duties in this respect; and whether the cost, if defrayed, would be medical relief, which did not disfranchise the parent.—Mr. BURNS answered: It is the duty of boards of guardians to relieve destitution, and, as pointed out in the circular to guardians on the administration of out-door relief, a person may properly be regarded as destitute who is unable to provide for himself the particular form of medical attendance or treatment of which he is in urgent need. The principle would appear to me to apply to the case of children who need medical treatment which the parent is unable to provide. I realise that the relative position of the boards of guardians and the local education authorities in this matter is one of some difficulty, and I have already had the matter under consideration. I may add that medical relief of the kind referred to afforded by boards of guardians would not involve disfranchisement of the parent.

MONDAY, MARCH 11TH.

The National Insurance Act.

Mr. F. HALL (Dulwich) asked the Secretary to the Treasury whether he was now in a position to state the date on which it was proposed that the National Insurance Act should come into force; whether such date would relate to the whole of the United Kingdom; and, if not, whether the working of the measure would be suspended in those districts which had shown themselves to be not yet ready for its provisions.—Mr. MASTERMAN said, in reply: I know of no reason why the health insurance part of the National Insurance Act should not come into operation on the date given in Section 115 of the Act—namely, July 15th, 1912. It is not intended that that date should vary in different parts of the United Kingdom. The Board of Trade as at present advised proposes to bring the unemployed insurance part of the Act into force on July 15th next for the United Kingdom as a whole.

Sick Absences in the Post Office Staff.

Mr. DAWES asked the Postmaster-General whether his attention had been directed to the number of sick absences, due mainly to nervous complaints, among the female counter clerks and telegraphists during the year 1911; whether he was aware that during the month of January, 1912, as many as 52 women out of a staff of 195 were absent for varying periods, and that during last month over 50 women were incapacitated for duty; whether he would state what additions had been made to the East Central district staff in consequence of the admitted understaffing a short time since; and whether he would institute a further inquiry into the general conditions of working and the nature of the duties imposed, with a view to removing the causes of the sick absences.—Mr. H. SAMUEL answered: My attention has been called to this matter. I am glad to say that apart from a small proportion of the staff who required prolonged sick leave the general health during 1911 of the female counter clerks and telegraphists employed in the East Central district was satisfactory in spite of the excessive heat experienced last summer. The amount of sick leave due to nervous ailments represented rather less than 14 per cent. of the total sick absence. The figures 52 and 50 quoted by the honourable Member include some other officers than counter clerks and telegraphists and are overstated by about 20 per cent. Five officers were added to the reserve staff during 1911 and the question of creating a further additional appointment is under consideration. In the circumstances I do not think that the inquiry referred to by the honourable Member is necessary.

The Certification of Lunatics.

In the course of the debate on the Vote of Account,

Mr. BURNS (President of the Local Government Board) said that where it was possible to have an inclusive salary for a Poor-law medical officer to certify lunacy it should be done, and as vacancies occurred by death or otherwise he was doing that. The certification of ordinary lunatics was a matter for the Lord Chancellor and Home Office.

WEDNESDAY, MARCH 13TH.

Sanatoria in Scotland.

Mr. FREDERICK WHYTE asked the Secretary for Scotland whether Scotland's share of the sum available for the erection of sanatoria under Section 64 of the National Insurance Act would be apportioned strictly according to the population of different areas; and whether he could give an assurance that necessitous districts in the Highland and Islands would not be allowed to suffer owing to the sparseness of their population.—Mr. MCKINNON WOOD replied: The matter is now under the consideration of the Local Government Board for Scotland in view of the terms of the section referred to, and my honourable friend may rest assured that the varying circumstances and conditions of different localities in Scotland will not be overlooked.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.

Acromegaly. A Personal Experience. By Leonard Portal Mark, M.D., late President of the West London Medico-Chirurgical Society, and Pathological Draughtsman to St. Bartholomew's Hospital. Price 7s. 6d. net.

Lessons on Massage. By Margaret D. Palmer, formerly Masseuse and Manager of the Massage Department of the London Hospital, and Instructor of Massage to the Nursing Staff. Fourth edition. Price 7s. 6d. net.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

Problems of Sex. By Professor J. Arthur Thomson (University of Aberdeen), and Professor Patrick Geddes (University of St. Andrews), authors of "The Evolution of Sex." ("New Tracts for the Times.") Price 6d. net.

National Ideals and Race Regeneration. By the Rev. R. F. Horton, M.A., D.D. Price 6d. net.

Womanhood and Race Regeneration. By Mary Scharlieb, M.D., M.S. Price 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BISHOP, E. STANMORE, F.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to the Victoria Memorial Jewish Hospital, Manchester.

BROWN, R. CUNYNGHAM, M.D. Durh., has been appointed Deputy Commissioner in Lunacy for Scotland.

BUTLER, WILLIAM, M.B., M.S. Glasg., has been appointed Deputy Medical Officer of Health to the London County Council.

CAMPBELL, G. F., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Bangor District of the county of Down.

MCGREGOR, J. G., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Castletown District of the county of Caithness.

MEADEN, CHARLES, M.D., B.S. Durh., has been appointed Medical Officer for the Fremington, Newton Tracey, and Tawstock Districts by the Barnstaple (Devon) Board of Guardians.

O'HARA, M. C., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Clara District of King's County.

PEREIRA, JOSEPH ANTHONY WENCESLAUS, M.D. Brux., L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the Exeter Lying-in Charity.

PRICE, PHILIP SEYMOUR, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Physician to the Margaret-street Hospital for Consumption.

SEDDON, ALBIN, L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H. Edin., has been appointed Medical Officer of Health of Frome (Somerset).

T IN BINDING

THOMPSON, PETER, M.D. Vict., has been appointed Dean of the Medical Faculty of Birmingham University.

TURNBULL, ROBERT CYRIL, M.D. Lond., has been appointed Medical Superintendent at the New Asylum, Colchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN, KINGSEAT ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, &c.

AGRA, UNITED PROVINCES, INDIA, DUFFERIN HOSPITALS AND FEMALE MEDICAL SCHOOL.—Female Senior Doctor. Salary £26 13*s.* 4*d.* per mensem, with free quarters.

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Each for six months.

BARNSLEY, BECKETT HOSPITAL.—Second House Surgeon, unmarried. Salary £100 per annum and all found.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and attendance.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Second and Third House Surgeons. Salaries £80 and £75 per annum respectively, with board, rooms, and laundry.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Salary at rate of 52 guineas per annum.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRADFORD CITY BABIES' WELCOMES.—Medical Officer (female). Salary £250 per annum.

BRENTFORD UNION INFIRMARY, WORKHOUSE AND SCHOOLS.—Second Assistant to Medical Superintendent, unmarried. Salary £125 per annum, with apartments, rations, washing, &c.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £80 per annum, with board and residence.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary £90 per annum, with rooms and attendance.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and laundry

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Pathologist. Salary at rate of £250 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician. Salary £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL (FREE), Fulham-road, S.W.—Assistant Pathologist. Salary £350 per annum. Also House Surgeon for six months. Salary £70 per annum.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.

CLIFTON, YORK, NORTH RIDING ASYLUM.—Second Assistant Medical Officer. Salary £150 per annum, with board, apartments, washing, and attendance.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

DORCHESTER COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £200 per annum, with board, &c.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons, each for six months. Salary £50 per annum, with board, residence, and washing. Also Medical Registrar.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, attendance, and washing.

DUNDEE ROYAL INFIRMARY.—Medical Assistants.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—Clinical Assistant.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Physician. Also House Surgeon. Salary at rate of £75 per annum in each case, with board, residence, laundry, &c.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Physician. Salary at rate of £75 per annum, with board, residence, and washing. Also Clinical Assistants.

FRIMLEY, BROMPTON HOSPITAL SANATORIUM.—Medical Superintendent. Salary £500 per annum, with board and residence.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Surgeon.

GREENOCK INFIRMARY.—Assistant House Surgeon. Salary £40 per annum, with residence.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

HEREFORDSHIRE GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £120 per annum, with board, apartments, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—Assistant Physician.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board, residence, &c. Also Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board and residence, &c.

JERSEY POOR-HOUSE AND INFIRMARY (HÔPITAL-GÉNÉRAL).—Medical Officer. Salary £250 per annum.

LIVERPOOL HOSPITAL FOR CANCER AND SKIN DISEASES, Myrtle-street.—Honorary Surgeon.

LIVERPOOL, STANLEY HOSPITAL.—House Surgeon.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120 per annum, with rooms, attendance, board, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board and residence.

MANCHESTER CORPORATION.—Assistant Medical Officer of Health. Salary £250 per annum, with board, lodging, and residence.

MERTHYR TYDFIL UNION WORKHOUSE.—Assistant Medical Officer. Salary £150 per annum, with apartments, rations, laundry, and attendance.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior and Junior House Surgeon for six months. Salaries at rate of £100 and £85 per annum respectively, with board, attendance, and laundry.

NAVAL FORCES IN THE UNITED KINGDOM.—Dental Surgeon. Salary £1 per day.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Casualty Officer, unmarried, for six months. Salary £60 per annum, with board, lodging, and washing.

PRESTON ROYAL INFIRMARY.—Senior and Junior House Surgeons, unmarried, for six months. Salaries £80 and £60 per annum respectively, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—Medical Registrar, Surgical Registrar, and Pathologist. Salary by arrangement.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ROYAL EAR HOSPITAL, Soho.—House Surgeon, non-resident. Salary £40 per annum. Also Honorary Assistant Anæsthetist.

ROYAL HALIFAX INFIRMARY.—Senior House Surgeon, unmarried. Salary £120 per annum, with residence, board, and washing. Also Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—House Physician for six months. Salary at rate of £80 per annum, with board, lodging, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Appointments.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Radiographer. Salary 25 guineas per annum.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £60 per annum.

SHEFFIELD UNIVERSITY.—Demonstrator in Experimental Physiology. Salary £200 per annum.

SHREWSBURY, SALOP INFIRMARY (COUNTY HOSPITAL).—House Physician. Salary at rate of £70 per annum, with board and apartments.

SINGAPORE MUNICIPALITY INFECTIOUS DISEASES HOSPITAL, STRAITS SETTLEMENTS.—Resident Medical Officer. Salary £400 per annum with free quarters.

SOUTHAMPTON WORKHOUSE INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer. Salary £130 per annum, with apartments, rations, washing, and attendance.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Physician. Salary £82 per annum, with board, residence, and laundry.

SUNDERLAND CHILDREN'S HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board, residence, and laundry.

SUNDERLAND ROYAL INFIRMARY.—Two Junior House Surgeons and House Physician for six months. Salary £80 per annum in each case, with board, residence, and laundry.

TEIGNMOUTH HOSPITAL, S. DEVON.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

TUNBRIDGE WELLS, ROYAL BOROUGH.—Medical Officer of Health. Salary £500 per annum.

WANDSWORTH UNION.—District Medical Officer. Salary £100 per annum.

WESTERN GENERAL INFIRMARY, Marylebone-road, N.W.—Honorary Physician.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Surgical Officer. Salary £125 per annum, with board, apartments, and laundry. Also Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

YORKSHIRE, NORTH RIDING COUNTY COUNCIL EDUCATION COMMITTEE.—Senior Assistant School Medical Officer. Salary £300 per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Tranent, in the county of Haddington; and at Holywood, in the county of Down.

Births, Marriages, and Deaths.

BIRTHS.

BENNETT.—On March 10th, at East Bergholt, Suffolk, the wife of H. G. Bennett, M.B., of a daughter.

WINTER.—On March 11th, at John of Gaunt's, Lincoln, the wife of Edward Stuart Winter, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

DONALDSON—BERESFORD.—On March 7th, at the Church of St. Peter and St. Paul, Harlington, Middlesex, Sam Donaldson, L.R.C.P., M.R.C.S., to Helen Maud, younger daughter of Lieutenant-Colonel G. W. Beresford.

MCCLURE—BRYCE.—On March 9th, at Brompton Parish Church, James McClure, M.D., F.R.C.S., to Annie Margaret Jardine (Rita), only daughter of the late Charles Chalmers Bryce and of Mrs. Bryce.

MANBY—BRUCE.—On March 12th, at St. Andrew's, Westminster, E. P. Manby, M.D., D.P.H., to Mary, widow of C. W. A. Bruce, F.L.S.

DEATHS.

LAMBKIN.—On March 8th, at Bloemfontein, Colonel F. J. Lambkin, R.A.M.C.

STEVENS.—On March 7th, 1912, at Tunbridge Wells, Emma, wife of G. J. B. Stevens, aged 52.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

WHO WAS DR. WINTER?

To the Editor of THE LANCET.

SIR,—In your leading article last week on the modern interpretation of the Hippocratic Oath you refer to the exchange of bitter epigrams between Dr. George Cheyne and Dr. Winter, as well as to Dr. Garth's well-known "Dispensary." Dr. George Cheyne is obviously the physician (1671–1743) to whom a small place is allotted in the National Dictionary of Biography, but Dr. Winter I cannot trace. Who was Dr. Winter? I am, Sir, yours faithfully,

March 11th, 1912. M.D.

*** Dr. Winter is only known to us as the author of the following verses addressed to Dr. Cheyne, in reference to that physician's advocacy of vegetarianism:—

Dr. Winter to Dr. Cheyne.

Tell me from whom, fat-headed Scot,
Thou didst thy system learn;
From Hippocrate thou hast it not,
Nor Celsus nor Pitcairn.

Suppose we own that milk is good
And say the same of grass;
The one for babes is only food,
The other for an ass.

Doctor! one new prescription try
(A friend's advice forgive):
Eat grass, reduce thyself, and die;
Thy patients then may live.

To this attack Dr. Cheyne made the following spirited *riposte*:—

Dr. Cheyne to Dr. Winter.

My system, doctor, is my own,
No tutor I pretend;
My blunders hurt myself alone,
But yours your dearest friend.

Were you to milk and straw confined,
Thrice happy might you be;
Perhaps you might regain your mind,
And from your wit get free.

I can't your kind prescription try,
But heartily forgive;
'Tis natural you should bid me die,
That you yourself may live.

The verses are far neater than is usual in this kind of controversy.—ED. L.

THE PRUDENTIAL ASSURANCE CO., LIMITED.

THE report for 1911 has just been issued. The total number of policies in force in both the ordinary and industrial branches, taken together, numbered at Dec. 31st, 1911, 19,943,441, as against 19,724,323 at Dec. 31st, 1910, an increase of 219,118 policies during the year. In the previous financial year there had been an increase of 466,290 policies during the year. The premiums for 1911 amounted to £12,443,676, as against £12,232,438 for 1910, an increase of £211,238. In the previous year there had been an increase of £350,561. The assets of the company for 1911 amounted to £81,239,682, as compared with £77,529,226 for 1910, an increase of £3,710,456. In the previous year there had been an increase of £3,327,525. The directors have continued the policy of writing down certain securities. It is curious to note how constant the number of deaths in the ordinary branch remained in the two years of 1910 and 1911—viz., 8465 as compared with 8471. The directors announce an increase in the rate of bonus of both branches, and they regret the deaths of two of their colleagues during the year—viz., Mr. John Whately Simmonds and Sir Henry Harben, president of the company. The vacancy in the directorate caused by the death of Mr. Simmonds has been filled by the appointment of Surgeon-Lieutenant-Colonel Horatio Robert Odo Cross, a qualified shareholder, and his election will be submitted to the shareholders for confirmation. Mr. Frederick Schooling has, after 45 years' service with the company, retired from the office of joint manager and actuary, and has been appointed to a seat on the board.

M. and E. S. P.—Electrolysis is certainly the only permanent method of removing hairs. There are various preparations which temporarily remove superfluous hair, but some of them may irritate the skin in so doing, and the hair will certainly return. We believe many who are afflicted in this way now shave periodically and are quite satisfied, defying the old idea that shaving greatly increases the growth. It is improbable that any external remedy will be found capable of removing hairs permanently; and any internal remedy would probably remove the hair of the head as well. This subject was dealt with in an article in THE LANCET of April 11th, 1908.

ERRATUM.—In the report of the Far Eastern Association of Tropical Medicine in THE LANCET of March 9th an error occurs in the statement (p. 674) of Messrs. Burroughs and Wellcome's exhibits. The words "and soamin" were omitted. It is not "epinine" (which is a synthetic substance allied in properties and chemical formula to the suprarenal active principle) but "soamin" that is used for syphilis and trypanosomiasis.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March, April, and May:—

March 23rd–April 4th (London, Royal Agricultural Hall).—International Smoke Abatement Exhibition.
April 1st and 2nd (Milan).—Italian National Convention upon the Sexual Question.
" (London).—First Congress of Pure Food and Health Society of Great Britain.
" 1st–7th (Tunis).—Twenty-second Congress of French-speaking Alienists and Neurologists.
" 8th–13th (Rome).—Seventh International Congress of Dermatology and Syphilology.
" 8th–15th (Johannesburg).—Thirteenth South African Medical Congress.
" 9th–11th (Paris).—Congress of Physiotherapy for French-speaking Physicians.
" 9th (Berlin).—Eleventh Congress of the German Society for Orthopædic Surgery.
" 9th–13th (Giessen).—Congress on Study of Families, Inheritance, and Race Hygiene.
" 10th–13th (Berlin).—Forty-first Congress of the German Surgical Society.
" 14th (Berlin).—Eighth Congress of the German Röntgen Society.
" 14th–20th (Rome).—Seventh International Congress on Tuberculosis.
" 15th–18th (Wiesbaden).—Twenty-ninth German Congress for Internal Medicine.
" 21st–24th (Munich).—Twenty-sixth Meeting of the Anatomical Society.
" (London, Olympia).—Ideal Homes Exhibition.
May 7th–17th (Washington).—Ninth International Red Cross Conference.
" 13th (London, Guildhall).—Conference on Diet in Schools.
" 23rd (opens) (Philadelphia).—Twelfth International Congress on Navigation.
" 23rd–25th (Hanover).—Nineteenth Meeting of the Union of German Laryngologists.
" 25th–27th (Paris).—International Musical Festival.
" 26th–28th (Paris).—National Conference the "Gouttes de Lait."
Whitsuntide (Portrush).—British Esperanto Congress
May 27th–June 1st (London).—Eighteenth International Congress of Americanists.
" 29th–31st (Berlin).—Fifteenth Session of the German Society for Gynæcology.
" (London).—International Horticultural Exhibition.
May to October (London, Earl's Court).—Shakespeare's England.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 13th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 7	29·89	N.W.	...	89	52	38	39	40	Fine
" 8	29·82	S.	0·01	65	49	40	42	44	Overcast
" 9	29·73	S.W.	0·09	97	52	43	45	48	Cloudy
" 10	29·66	E.	...	85	55	42	45	47	Cloudy
" 11	29·94	S.E.	...	72	49	40	41	41	Foggy
" 12	30·29	S.	...	60	50	39	40	40	Foggy
" 13	30·13	S.W.	0·07	57	53	39	47	48	Raining

The following journals, magazines, &c., have been received:—Journal of Genetics, Child, Annali di Medicina Navale e Coloniale, American Journal of Medical Sciences, Medico-legal Journal (New York), Bulletins et Mémoires de la Société de Radiologie Médicale de Paris, Yale Medical Journal, Monthly Cyclopedia, Pharmaceutical Journal, Dublin Journal of Medical Science, Æsculape, Journal of State Medicine, La Clinique Ophtalmologique, London Hospital Gazette, Tuberculosis, Biometrika, &c.

INT IN BINDING

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Lord Rayleigh, O.M.: On the Self-induction of Electric Currents in a Thin Anchor-ring.—Hon. R. J. Strutt: The Afterluminosity of Electric Discharge in Hydrogen Observed by Hertz.—Prof. J. H. Poynting: On the Changes in the Dimensions of a Steel Wire when Twisted, and on the Pressure of Distortional Waves in Steel.—Mr. H. S. Patterson, Mr. R. S. Cripps, and Mr. R. Whytlaw-Gray: The Critical Constants and Orthobaric Densities of Xenon (communicated by Sir William Ramsay, K.C.B.).—Mr. W. A. Harwood and Mr. J. E. Petavel: Experimental Work on a New Standard of Light.—Mr. J. A. Crowther: On the Distribution of the Scattered Röntgen Radiation (communicated by Prof. Sir J. J. Thomson).—Mr. E. A. Owen: The Passage of Homogeneous Röntgen Rays through Gases (communicated by Prof. Sir J. J. Thomson).—Mr. J. C. Chapman: Fluorescent Röntgen Radiation from Elements of High Atomic Weight (communicated by Prof. Sir J. J. Thomson).—Mr. J. A. Gray: The Nature of the γ Rays excited by β Rays (communicated by Prof. E. Rutherford).

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—H. Charles Cameron, H. H. Dale): at 4.30 P.M.

Papers:

Sir Lauder Brunton, Bt., F.R.S.: Ludwig's and Other Theories of the Secretion of Urine and the Action of Diuretics.

Dr. J. A. Shaw-Mackenzie: Certain Reactions of the Blood in Carcinoma (and Other Conditions) with Suggestions on Treatment.

PATHOLOGICAL SECTION (Hon. Secretaries—J. C. G. Ledingham, A. E. Boycott): at 8.30 P.M.

Annual General Meeting.

Communications:

Dr. C. Russ: An Improved Method for Opsonic Estimations (with demonstration).

Dr. H. Warren Crowe: The Incidence of Streptococci in Urine.

Dr. H. C. Ross: The Mitotic Figures Induced in Lymphocytes by Auxetics (with demonstration).

Dr. W. Nicoll: The Blood-volume of Dogs Infected with the Hook-worm (Anchylostoma Caninum).

Dr. A. E. Boycott and Dr. C. Price-Jones: Experimental Trypanosome Anæmia.

Dr. A. E. Boycott and Dr. J. H. Ryffel: The Action of Diuretics in Experimental Nephritis.

Dr. H. R. Dean: A Case of Pneumococcal Ulcerative Endocarditis.

WEDNESDAY.

CLINICAL SECTION (Hon. Secretaries: James Galloway, Charles H. Fagge): at 5 P.M.

Special Meeting at the Medical School, University College Hospital, Gower-street, W.C.

Professor Einthoven (Leyden): Observations of the Movements of the Heart by Means of Electro cardiograms.

Miss Florence Buchanan: Experimental Observations on this Subject.

Dr. James Mackenzie, Dr. Thomas Lewis, and others will Discuss the Clinical Use of this Method.

Those desirous of joining in the discussion are requested to communicate with the Hon. Secretaries of the Section.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—J. H. Sequeira, Wilfred Fox), at 11, Chandos-street, W.: at 5 P.M.

Demonstration of Cases:

Dr. Bunch: Congenital Xanthoma.

Dr. Pernet: Xantho-erythrodermia Perstans (private case).

Dr. Whitfield: (1) Section of Skin of Kitten showing Ringworm Fungus; (2) Culture from Hair of Child Infected by the Kitten.

Dr. Sequeira: (1) Case for Diagnosis; (2) Nævus Vascularis. And other Cases.

NEUROLOGICAL SECTION (Hon. Secretaries—Wilfred Harris, T. Grainger Stewart): at 8.30 P.M.

Clinical Meeting at the National Hospital, Queen-square, W.C.

Cases

Will be shown by Dr. Ormerod, Dr. Tooth, Dr. James Taylor, Dr. Risien Russell, Dr. Batten, Dr. Donald Hall, Dr. Turney, Dr. Prentice, and others.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—T. R. Whipham, H. S. Clogg, Percy G. Lewis), at 11, Chandos-street, W.: at 4.30 P.M.

Cases:

Dr. J. L. Bunch: Leucodermia, Melanodermia, and Premature Canities. And other Cases.

Paper:

Dr. A. F. Hertz: Constipation in Childhood, with epidiascope demonstration.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan): at 8.30 P.M.

Paper:

Dr. Miles B. Arnold: The Relation of Housing to Hospital Isolation and to "Return Cases" of Scarlet Fever.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

TUESDAY.—8.30 P.M., Dr. S. Melville: State Regulation of Vice.

ROYAL METEOROLOGICAL SOCIETY, Institution of Civil Engineers, Great George-street, Westminster, S.W.

WEDNESDAY.—7.30 P.M., Prof. O. Pettersson: The Connexion between Hydrographical and Meteorological Phenomena (illustrated by lantern slides).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Prof. J. W. H. Eyre: The Pathology and Diagnosis of Tuberculosis of the Conjunctiva.

WEDNESDAY.—5 P.M., Dr. L. G. Parsons: The Mechanism and Treatment of Shock.

FRIDAY.—5 P.M., Mr. H. T. Gray: The Mechanism and Treatment of Shock.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Mr. P. J. Freyer: Stone in the Bladder—its Modern Treatment.

TUESDAY.—4 P.M., Dr. A. Jex-Blake: Clinique (Medical). 5.15 P.M., Lecture:—Dr. N. Raw: Tuberculosis of the Genito-urinary Tract and its Treatment.

WEDNESDAY.—4 P.M., Mr. G. Taylor: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. A. Lane: Chronic Intestinal Stasis.

THURSDAY.—4 P.M., Sir A. Pearce Gould, K.C.V.O.: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. R. M. Leslie: Enteroptosis and its Treatment.

FRIDAY.—4 P.M., Mr. G. J. Jenkins: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine. (Lecture VI.)

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11 A.M., Mr. Rtherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Yellow Fever.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. H. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. B. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Mr. H. W. Carson: The Treatment of Surgical Disorders of Digestion.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. B. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Dr. A. J. Whiting: The Recognition and Significance of Various Forms of Irregularity of the Pulse.

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. H. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 3.15 P.M., Dr. R. Wells: Medicine. 2.15 P.M., Mr. R. Carling: Surgery. 4.15 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture: Mr. R. Carling: After-treatment of Abdominal Cases.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4.30 P.M., Special Lecture:—Prof. Hewlett: Ultramicroscopic Causes of Disease.

VOLUME TIGHTI

FRIDAY.—2 P.M., Operations. 2.15 P.M., Sir J. Rose Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—10 A.M., Radiography. 11 A.M., Dr. A. Davies: Pathological Demonstration. 2 P.M., Operations. Out-patient Demonstration:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY.—4 P.M., Lecture:—Dr. Poynton: Appendicitis in Childhood.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. F. Buzzard: Myasthenia Gravis
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. F. Buzzard: Cases.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
TUESDAY.—6 P.M., Dr. W. Griffith: Diseases of the Hair.

UNIVERSITY OF LONDON (UNIVERSITY COLLEGE), The Francis Galton Laboratory for National Eugenics.
TUESDAY.—8.30 P.M., Prof. K. Pearson: Social Problems, their Treatment, Past, Present, and Future. (Lecture VIII.)

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Lecture Theatre of the Lister Institute, Chelsea Bridge-road, S.W.
TUESDAY.—5 P.M., Dr. W. Nicoll: Modern Aspects of Helminthology—General Bionomical Considerations, Nomenclature, Methods of Classification. (Lecture I.)
FRIDAY.—5 P.M., Dr. W. Nicoll: Modern Aspects of Helminthology—General Morphology and Biology of Trematodes and Cestodes. (Lecture II.)

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
SATURDAY.—3 P.M., Prof. Sir J. J. Thomson: Molecular Physics. (Lecture V.)

ANCOATS HOSPITAL, Manchester.
THURSDAY.—4.15 P.M., Dr. E. B. Leech: Dropsy. (Post-Graduate Clinic.)

SALFORD ROYAL HOSPITAL.
THURSDAY.—4.30 P.M., Dr. F. E. Tylecote: "606." (Post-Graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.). Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY 21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (23rd).—Royal Free (9A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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